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ESTABLISHED 1891

PUBLISHED EVERY SATURDAY

VOL. XXVII, PART II, No. 1394.

JOHANNESBURG, TRANSVAAL, SATURDAY, JUNE 15, 1918.

[WEEKLY, PRICE 6D.]

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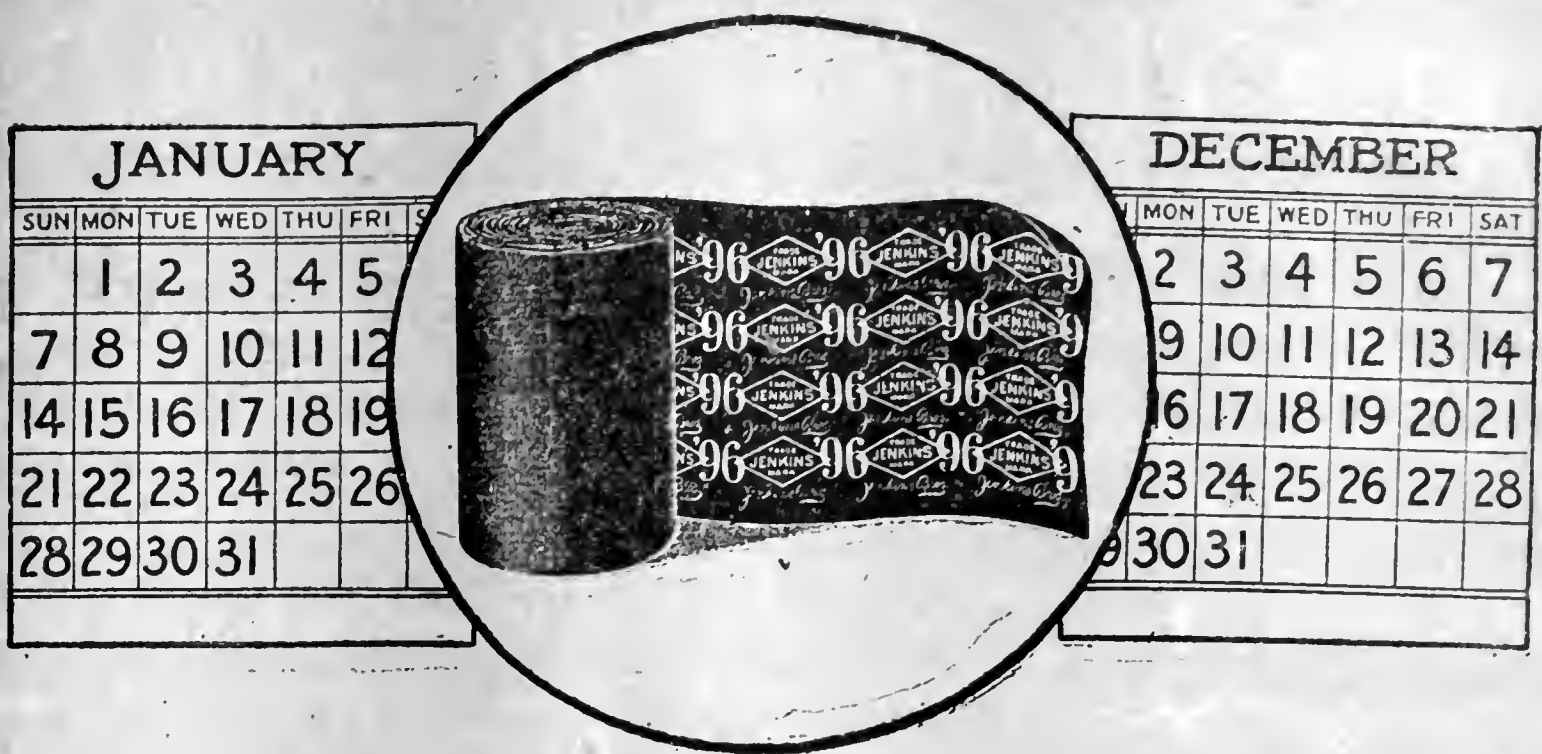
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NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Ordinary General Meeting of Shareholders in the above Company will be held in the Board Room, Consolidated Gold Fields Buildings, Simmonds Street, Johannesburg, on FRIDAY, 23rd AUGUST, 1918, at 11.30 o'clock in the forenoon, for the following purposes:—

- (1) To receive the reports of the Directors and Auditor, and to consider the Balance Sheet as at 30th June, 1918, and Statement of Income and Expenditure for the year ended 30th June, 1918.
- (2) To elect three Directors in the places of Messrs. D. Christopherson, C.B.E., W. S. Smits, and Lt.-Col. F. Leslie Brown, D.S.O., who retire in accordance with the provisions of the Articles of Association, but are eligible and offer themselves for re-election.
- (3) To elect an auditor for the current year, and to fix the remuneration for the past year's audit.
- (4) To transact such other business as may be transacted at an Ordinary General Meeting.

The Transfer Books of the Company will be closed from the 16th to the 23rd August, 1918, both days inclusive.

By Order of the Board,

The Consolidated Gold Fields of South Africa, Limited,
Secretaries,
per A. S. THOMPSON.

Head Office:
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Notice to Shareholders.

NOTICE IS HEREBY GIVEN that the Twentieth Ordinary General Meeting of Shareholders in the above Company will be held in the Board Room, Consolidated Gold Fields Buildings, Simmonds Street, Johannesburg, on FRIDAY, the 25th October, 1918, at 11.15 o'clock in the forenoon, for the following purposes:—

- (1) To receive and consider the Reports of the Directors and Auditors, the Balance Sheet as at 30th June, 1918, and Statement of Income and Expenditure for the year ended 30th June, 1918.
- (2) To elect two Directors in the places of Messrs. C. Hely-Hutchinson and W. S. Smits, who retire by rotation, but are eligible and offer themselves for re-election.
- (3) To appoint Auditors for the current year, and to fix the remuneration for the past year's audit.
- (4) To transact such other business as may be transacted at an Ordinary General Meeting.

The Transfer Books of the Company will be closed from the 18th to 25th October, 1918, both days inclusive.

Holders of Share Warrants to Bearer intending to vote at this Meeting must comply with the Regulations concerning the issue of Share Warrants.

By Order of the Board,

The Consolidated Gold Fields of South Africa, Limited,
Secretaries,
per A. S. THOMPSON.

Head Office:
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Simmonds Street, Johannesburg,
10th June, 1918.

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Notice to Shareholders.

NOTICE IS HEREBY GIVEN that the Twentieth Ordinary General Meeting of Shareholders in the above Company will be held in the Board Room, Consolidated Gold Fields Buildings, Simmonds Street, Johannesburg, on FRIDAY, the 25th OCTOBER, 1918, at 12 o'clock noon, for the following purposes:—

- (1) To receive the Reports of the Directors and Auditors, and to consider the Balance Sheet as at 30th June, 1918, and Statement of Income and Expenditure for the year ended 30th June, 1918.
- (2) To elect two Directors in the places of Messrs. W. S. Smits and P. Dreyfus, who retire by rotation, but are eligible and offer themselves for re-election.
- (3) To elect Auditors for the current year, and to fix the remuneration for the past year's audit.
- (4) To transact such other business as may be transacted at an Ordinary General Meeting.

The Transfer Books of the Company will be closed from the 18th to 25th October, 1918, both days inclusive.

By Order of the Board,

The Consolidated Gold Fields of South Africa, Limited,
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THE SOUTH AFRICAN

Mining Journal

AND ENGINEERING RECORD.

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

ESTABLISHED 1891.

VOL. XXVII, PART II.] JUNE 15, 1918. [No. 1394.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone **913**. P.O. Boxes **963** and **4573**.

Cable and Telegraphic Address: "**MINING JOURNAL**."

AGENTS FOR GREAT BRITAIN AND AMERICA: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining Journal and Engineering Record* is: South Africa, 1d. All other parts, 1½d.

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Notes and News

The whole community is under a deep obligation to the President of the Chamber of Mines for his straight talk on the increasing wage demands on the mines. The statement made by Mr. Wallers is set out in full in

this issue, and its importance cannot be over-emphasised at the present juncture. Mr. Kentridge's feeble attempts to controvert it merely serve to accentuate its inherent soundness. It appears that a list of the demands of the miners was handed over to the South African Industrial Federation a fortnight or more ago and circulated among Unionists for their information. The Chamber of Mines has been notified of those demands without delay, but they have been deferred pending demands coming forward from the Amalgamated Society of Engineers. In respect to those demands, which have been in process of formation for the past three or four months, a ballot has been taken during the past fortnight. The result of the ballot will be known by to-day, and the Federation will arrange for a conference to consider the demands of all the federated unions. In all probability a meeting of the federated unions concerned in the demands will be held this evening for the purpose of giving the matter joint consideration, and each union will be asked to discuss the demands of the other unions from its particular standpoint. After an exchange of views a general policy with regard to the demands will probably be formulated.

* * * *

The secretaries of Springs Mines, Ltd., write as follows:

We are instructed to inform you that at **Springs Mines**, an interview between the Secretary for Mines and Industries, the Government Mining Engineer, and the Chairman and Consulting Engineer of the company held to-day, the main outlines of the agreement to be entered into with the new company now being formed to work the West Rietfontein lease area were discussed, and that the agreement is now being drafted. As announced by the chairman at the annual general meeting of shareholders on the 30th ultimo, the agreement will be submitted to the Government for approval before being signed. Thereafter it will be published for the information of shareholders.

* * * *

The Executive of the Rhodesia Chamber of Mines has again had under consideration the question of **Rhodesian Mines recruiting** on mines for war service, and in the case of any indispensable employee desiring to leave for such service before he can be adequately replaced, it is understood that H.H. the Administrator, having regard for the High Commissioner's Proclamation of two years ago, has expressed himself as willing to sign a certificate, pre-signed by a mine manager, to the effect that in assisting to carry on mining operations the output from which is entirely in the interests of the Allies, the employee is doing his duty equally as well as if he were serving with a fighting unit.

* * * *

The Rhodesia Chamber of Mines has been advised that the Ministry of Munitions has increased the price it will pay for all wolfram ore and scheelite arriving in the United Kingdom after 1st January, 1918, from 55s. to 60s.

Base Metal Prices. The Chamber has also been informed by H.M.'s Trade Commissioner, Capetown, that corundum is now in good demand in consequence of the war and that in all probability it will continue to be in demand during the years of reconstruction and industrial competition. It is necessary that corundum mine owners should submit samples of their mineral and reports in regard to its usefulness, as there are so many varieties found, most being crystalline, some semi-crystalline, and some granular, in various shades and colours, all of which conditions more or less influence the price. Crystalline corundum is better than semi-crystalline or granular. Among the crystalline varieties the pink or ruby is most liked, but the green and

blue varieties are almost equally appreciated. Corundum mine owners should communicate direct with Messrs. Ort P. Norik & Co., 19, Eastcheap, London, E.C. 3. This firm also desires communication with owners of mica mines.

* * * *

In an annexure containing recommendations regarding the institution of a mineral survey, the **A Mineral Survey of the Union.** Scientific and Technical Committee state that it has, from its inception, felt convinced of the urgent necessity for a survey of the mineral resources of the Union of South Africa, as being one of the main essentials for the full development of industries in the country, and, at its first meeting at Capetown, it adopted a resolution to that effect. As a preliminary to this investigation, it was resolved to obtain reports on the information at present available regarding the occurrence in the Union of minerals of economic value. The first of these reports on "Oil Shales, Mineral Oils, and Solid Bitumens," by Dr. P. A. Wagner, has already been received, and the preparation of two others, viz., on "Certain Minerals used in the Arts and Industries," by the same author, and on "Base Metals and their Production," by Dr. Versfeld, is well advanced. The Committee now feels that the time has arrived for definitely urging on the Government the institution of the survey above referred to. The most careful consideration has been given to the means by which the survey can best be carried out, and, in this connection, the sub-committee appointed to deal with the matter has given due weight to the memorandum on the subject prepared by the Director of the Geological Survey, and has discussed with him various points that have arisen in the course of its deliberations. Before proceeding further, it is necessary to explain exactly what is intended should be the character of the proposed survey, which may be conveniently referred to as "The Mineral Survey." The survey should be directed to a description of deposits of minerals of economic importance. A list of the more important of such minerals, with some of their uses, is appended to the report. In addition to the occurrences of minerals mentioned in this list, certain ore deposits of the country that have not hitherto received sufficient attention, e.g., iron ores, should be thoroughly investigated. The reports furnished should be of such a nature as to establish direct contact with persons whose interest in the occurrences is a purely industrial or commercial one. In other words, it should be the duty of those engaged in the work, while not losing sight of the more strictly scientific aspects of the occurrences to devote their attention principally to such features as determine whether a mineral deposit can be worked with a profit. It may be pointed out here that this will involve, among other things, the laboratory investigation of mineral samples, as these will have to be submitted to chemical analysis and other tests required to prove their suitability or otherwise for industrial use. In some instances it will be necessary to have the minerals tested abroad.

* * * *

In the Interim Report of the Rhodesia Munitions and Resources Committee it was stated that **Wankie Coal.** the Wankie Colliery was not equipped for the recovery of any by-products from its coal, although a very large tonnage of coal is produced monthly, the reason given being that, to ensure economic success in their recovery, it was necessary that all the valuable contents and not one or two only should be recovered. According to the latest report of the committee, the production of coke from the colliery has increased greatly in the past two years on account of the much larger demands of the Union Miniere for their smelting operations at Lubumbashi, Katanga, but the colliery management still considers the time has not yet arrived to instal special coke ovens to recover by-products. This conclusion is quite understandable owing to the comparatively limited market for these in Rhodesia and the Congo, and railage charges

over the long distance to Johannesburg and other places in the Union renders any reasonable profit very problematical. The requirements of the Rhodesian and Congo markets for ordinary or special shaped fire bricks are supplied by the Colliery, on whose property there are large deposits of excellent fire clay. The company might, however, go further in this direction for all the clay crucibles, muffles, smelting pots, liners and other articles made from similar material have still to be imported. Very considerable quantities of these articles are now being manufactured in the Union. A test was made some time since by the Standard Bank assay department, Bulawayo, of a trial lot of crucibles (specially made at Wankie, by hand, for this purpose) which showed that it was quite possible to manufacture a first class quality of such requirements from Wankie fire clay, and the committee would again suggest that a trade in fire clay goods other than fire bricks might profitably be opened up at the colliery which should be beneficial to itself as well as to the country. The question of plant would probably not present any great difficulty as, if the necessary equipment could not be secured from overseas, plans might be procured and its manufacture carried out in South Africa. Rhodesia is exceedingly fortunate in having such an excellent quality of coal as the Wankie field possesses. From a power production point of view it could hardly be bettered and it produces coke of a very good quality, but unfortunately not equal for foundry purposes to some of that made from Union coal, on account of its sulphur content. For blast furnace work, however, it is unexceptionable, as it stands pressure and handling particularly well.

* * * *

The petition of Mr. Frank Raleigh for an order declaring null and void the election of F. Catesby **The Wit. Deep Case.** Holland as chairman and of Ernest Deeble, Siegfried Rosenzweig and Joseph Arthur Ashworth Ellis as directors of the

Witwatersrand Deep was again before Mr. Justice Ward in the Rand Division of the Supreme Court this week. Since the rule nisi granted last week affidavits had been filed on behalf of the respondents. Mr. Holland, in his affidavit, stated that by voting for the adoption of the report he never intended, and he did not believe that the majority of the shareholders intended, to effect confirmation of the elections made by the board during the year to fill up casual vacancies. After the declaration of the poll on the 28th of May Mr. Gamble and he received notice of a meeting of the board of directors to be held on the 29th of May. All the respondents took legal advice, and as a result decided not to claim the right to act under the resolution complained of and passed before the poll, and Rosenzweig, Deeble and Ellis decided not to claim to be directors. Deponent and Gamble attended the board meeting at which Mr. G. Fitzpatrick was, with his concurrence and support, elected chairman. He (Mr. Holland) declared that by claiming the chair at the adjourned meeting of the 28th of May he did not claim to be the chairman of the board of directors, but only claimed that he had been elected chairman of the continuation of the meeting of the 23rd of May. He had, however, never acted or held himself out to be chairman of the board of directors, and whether he was right or wrong in the attitude he took up at the adjourned meeting of shareholders of the 28th of May neither he nor his friends claimed any rights under the resolutions passed at that meeting. Messrs. W. E. Bleloch, J. A. A. Ellis, Siegfried Rosenzweig and Ernest Deeble made supporting affidavits. Mr. Barry (for the applicant) asked for a postponement of the application, pointing out that the respondent's affidavits were only served yesterday, and that there had been no time to prepare replying affidavits. Mr. Mulligan (on behalf of Mr. Holland) and Mr. Kent (on behalf of the other respondents) opposed an adjournment. Mr. Mulligan remarking that it was unpleasant for the respondents to have this matter hanging over them. Mr. Justice Ward: I should not have thought it was a saw with a very sharp edge. His Lordship granted a postponement till Thursday next. If the parties were ready and agreed the matter could be taken on Wednesday. The costs were reserved.

TOPICS OF THE WEEK.

THE INDUSTRIES AND RESEARCH REPORTS.

THE reports of the Industries Advisory Board and of the Scientific and Technical Committee covering their work to the end of 1917 have reached us. In a brief introduction, the Secretary for Mines and Industries says: "Both bodies are working in close co-operation with the Industries Section of this Department and have given it the greatest assistance in dealing with its growing activities. Indeed, in several important matters their advice and practical aid have been invaluable. While the Industries Board has directed its attention generally to a preliminary stocktaking of the industrial position of the Union, and has made special enquiries into certain outstanding matters connected with industrial development, the Scientific and Technical Committee has commenced a survey of the raw materials available in the country, and is investigating in a number of directions the methods and possibilities of developing and utilising those raw materials in manufacture and production. The pioneer character of much of this work, and its novel character so far as South Africa is concerned, has presented special difficulties. An immense amount of painstaking work has, however, been accomplished by the Chairman and members, the results of which are already becoming felt in the increasing productive capacity of the Union in new directions. The importance of co-operating with and taking advantage of the activities of the existing scientific and research divisions of Government Departments has been fully recognised, and the appointment by Government of Assessors to the Scientific and Technical Committee from the technical departments should tend to ensure the enlisting in a common cause of all the scientific elements of the Service. The whole-hearted sympathy and assistance of scientific men in the Technical Societies and in the Universities of the country are already assured and gratefully appreciated." It will be recollected that the recent census of industries revealed a gross annual production of nearly forty millions capital value, distributed among some four thousand industrial establishments, employing upwards of a hundred thousand persons, whose combined earnings total over eight and three-quarter million pounds. These figures are not, however, by any means up to date. In no case could the returns be brought down later than June, 1916, and it is the subsequent period which has witnessed the greatest increase of industrial enterprise owing to the demands upon our own resources created by the war. The reports under notice comprise a rough estimate of some twenty-three new manufacturing processes inaugurated last year, but this, again, does not purport to be exhaustive. An interesting enquiry was made into the Union's timber resources. We import timber to the value of nearly a million and a half annually. The output from the Government forests is estimated at about £25,000. Much of this, when properly seasoned, affords excellent building material, as many old houses testify. If, however, it is not properly handled, and is used prematurely, it is apt to warp and split. A useful purpose has therefore been served by the impetus which has been given, between the Advisory Board and the Chief Conservator of Forests, for the systematic investigation of the handling and seasoning of our South African timber on scientific lines. The Advisory Board has also gone fully into various matters connected with the leather industry. In the case of the Board's exhaustive enquiries concerning the possibilities governing the production within the Union of industrial alcohol, the net result is stated to be that "whereas it was formerly impossible to manufacture motor spirit in this country, its production is now a reasonable business proposition." The question of diamond-cutting was investigated, and was found to "bristle with difficulties." The Board was not entirely unanimous in thinking the occasion inopportune for dealing with the question, "although it was generally agreed that there were other industries in the country, less dependent upon the fickle dictates of fashion, and possessing greater possibilities of success, which deserved the more immediate consideration of Government." As already known, however,

the outcome in this case was certain action on the part of the Government whereby local cutters, if they desire to develop the business, have been placed in a position to obtain supplies. These are only a few examples from among many industrial matters that have come before the Board. At almost every point the Board has found the industrial problem complicated by Customs issues which are held to point to the need of a "scientific tariff," adapted to the changed conditions. While the Advisory Board has been thus engaged upon an industrial stock-taking, the Scientific and Technical Committee has commenced a detailed survey of the country's raw materials, and is carrying on a number of specific investigations as to the possibility of their practical utilisation. Some interesting extracts from the blue-book will be found in this and succeeding issues.

An important clause in the new Mining Leases Act grants permission to use ground held under mining title for agricultural purposes. **Small Holdings on Mining Ground.** The clause is as follows: The mining commissioner may, subject to confirmation by the Minister, permit the use of the surface of any ground held under mining title for gardens, agriculture and the planting of trees, orchards and vineyards: Provided that—(a) the permission shall not be granted in the case of private land except upon the request of the owner and upon terms and conditions to which he may agree; (b) the permission shall not be granted if, in the opinion of the Government Mining Engineer, the land is, or is likely to be, required for mining purposes or purposes incidental to mining; (c) if any portion of such land is at any time required for mining purposes or purposes incidental to mining, so much of the permission as applies to that portion may be cancelled by the mining commissioner subject to payment by the person requiring the land for those purposes of such compensation to the holder of the permission as shall in the absence of agreement, be determined by arbitration.

* * * *

Referring, at the annual meeting of the Constantia Fruit-Growers' Association, to the shortage of sulphur, which was at present almost unobtainable, Mr. Henry Cloete mentioned that the Co-operative Wine Growers' Association, realising the seriousness of the position if no sulphur were available next year, had made representations to Government suggesting that Government should either import the sulphur themselves, or arrive at some arrangement with a firm of standing to supply the deficiency of this most necessary requirement of the wine farmer. The position so far was that through the good offices of the Union and Imperial Governments a South African corporation had been enabled to secure a large supply of the commodity in the United States, and they had got so far as to charter a sailing vessel which would be able to convey 1,400 tons of sulphur to this country. All that now was wanted was the consent of the United States Government to allow the vessel to sail in August next as projected. This will mean that, all going well, the goods would arrive here by October or early in November. The firm concerned was also endeavouring to arrange for further large shipments, if freights can be secured. He pointed out that while the initiative in the matter came from the Co-operative Wine Growers, whose members would have first preference, he had been assured in writing by the firm concerned that, all going well, there would be ample supplies for other buyers. He dwelled on the importance of an adequate supply of sulphur in that district where the oidium was so destructive, and in fact, if they were to go without, not only would next year's grape crop be ruined, but the vines would be affected to such an extent as to take them years to recover. To strengthen the hands of those who are urging the matter on the Government, Mr. Cloete moved a resolution to the effect that unless an adequate supply of sulphur was available next year it would have disastrous consequences to the wine and grape industries. This was agreed to, and it was resolved to send a copy of the resolution to the Secretary for Agriculture, at the same time urging on him the need for immediate action.

RAND PROSPERITY MENACED BY INCREASING WAGES.

Limit of Wages and Working Costs Reached—Straight Talk by the President of the Chamber of Mines.

BEFORE the Commissioner appointed to enquire into the recent Municipal Power Station strike, this week, Mr. E. A. Wallers, President of the Transvaal Chamber of Mines, made the following statement: I have asked permission to give evidence before this Commission, not because the strike of the Power Station mechanics actually and directly affected the mining industry at the moment in any very important respect, but because its effect, if translated into a proportionate increase in the wages paid to the employees of the gold mines similar to that given to municipal employees, would, under existing conditions, immediately and effectually destroy the prosperity of the Witwatersrand. The position of the mining industry in this matter is, therefore, one of general interest, and should be realised very clearly by the community as a whole, because it is the whole community that would be disastrously affected. With your permission I will briefly submit to you a few of the salient features. For some years it has been the policy of the Chamber of Mines to meet the unions representing the mine employees, to meet them promptly, and to discuss with them the desires and complaints of their members. So far as the mechanics' unions are concerned, negotiations are conducted through the South African Industrial Federation, which has been nominated by these unions as their channel of intercourse with the Chamber. Thus, in May, 1916, Mr. E. Dingwall, secretary of the Witwatersrand Joint District Committee of the Amalgamated Society of Engineers, wrote to the Chamber asking that all correspondence in connection with that society's demands should be conducted through the Federation, which body, he stated, had been adopted by the society as its channel of intercourse.

WAGES QUESTION.

Naturally the question of wages has been one of the main points discussed. The impossibility of the gold mines passing on increases in their working cost owing to the price of gold being fixed renders the wages question an infinitely more serious one to the mines than to other industries. The attitude of the Chamber in dealing with requests for increases in wages since the war commenced has been: (1) To provide a basic wage below which no Europeans shall be employed. This basic wage was fixed at 12s. 6d. per shift for underground employees. (2) By means of a war bonus to make up to the lower paid employees who are married, or who are single, but have dependents, the whole of the increase in the cost of living. (3) To make up to the higher-paid employees a portion of the increase in the cost of living, but to assume that employees earning more than a certain salary are able to bear the whole increase themselves. In this connection it should be borne in mind that before the war the wages of artisans and other skilled workers were higher on the Witwatersrand than in any other country, after allowing for then existing differences in the cost of living.

THE AGREEMENT WITH THE UNIONS.

The Chamber, while endeavouring by means of the war bonus to meet hardships due to the increase in the cost of living, has declined to grant the bonus to single men without dependents who have not suffered to any extent by the rising prices. In the case of mechanics, although a war allowance of 3d. per hour is paid to all mechanics, both married and single, yet this allowance is only equal to the total allowance that would have been payable to the married mechanics only under the Chamber's ordinary war bonus scheme, divided amongst all mechanics. This arrangement being made at the request of the mechanics themselves. The Unions have definitely agreed to the principle of meeting the increase in wages, and have also agreed that the question of wages shall not be again raised by them until at least three months after the conclusion of peace, reserving, however, the right to again raise the question of an

increased war bonus should the cost of living still further increase. All the Unions have recognised the principle that matters in dispute must be discussed between them and the Chamber before precipitate action is taken, and although occasionally individual bodies of men have taken precipitate action in spite of this arrangement, they have not been supported by the Unions concerned.

MECHANICS.

The wages at present paid to mechanics on the mines are 2s. 6d. per hour, with a war allowance of 3d. per hour, over a 48 hours' week (in all £6 12s. per week), as compared with 2s. 4.8d. per hour before the war; in addition, the mechanics have been granted 12 days' paid holiday per annum, equal to another 1d. per hour. The wages agreed to by the Municipality for the Power Station mechanics, namely, £8 2s. per week, are consequently out of all proportion to the wages payable to the mine mechanics, who form the great bulk of the mechanics on the Witwatersrand, and bear no relation to the increase in the cost of living. Were the wages of mechanics on the mines increased to the same figure, the increase would be 42 per cent. above the pre-war rate and 23 per cent. above the present wages. A similar increase to all the employees of the gold mines would entail an expenditure of £1,840,000, equal to approximately 1s. 4d. per ton milled.

LOW GRADE MINES.

The following mines are all making a working profit of less than 1s. 4d. per ton, and in point of fact most of them are well below that figure and hardly making ends meet:—

	Total No. of whites employed, April, 1918.	Earnings of European Employees, 1917.	Other costs, 1917.	Total working costs 1917.
Bantjes Cons.	206	£70,483	£224,596	£295,029
E.R.P.M.	1,662	618,382	1,103,051	1,721,433
Geldenhuis Deep .	601	195,152	480,187	675,339
Ginsberg	130	45,938	105,577	151,515
Glencairn	105	38,769	111,581	150,350
Knight Central	295	107,359	27,044	423,403
Knights Deep	774	230,866	557,766	688,632
Luipaardsvlei	215	75,558	181,989	257,547
New Goch	146	57,354	137,644	195,498
New Primrose	143	48,018	114,645	162,663
Princess	220	81,213	245,803	327,016
Randfontein	1,699	605,919	1,396,515	2,002,484
Robinson	440	130,224	336,653	466,877
Roodepoort United	237	96,060	261,077	357,137
Simmer Deep	528	179,852	366,196	546,048
West Rand Cons..	329	120,062	268,639	388,701
Wit. Deep	404	140,584	297,008	437,592

Totals 8,134 £2,842,243 £6,405,971 £9,248,214

Many other mines not at present in danger of closing down would be brought to the verge of doing so, and it is no exaggeration therefore for me to repeat that the prosperity of the Witwatersrand would be destroyed, while the credit and stability of South Africa as a whole would be seriously jeopardised. It cannot even be argued that the mine employees still remaining in employment would really benefit by the increase in wages, as the number of unemployed would be so great that it would be impossible to maintain artificial and extravagant rates. The Chamber feels that the peculiar position of the Witwatersrand, depending as it does for its prosperity on the continuance of an industry which is unable to charge more for its product, and the scope of whose operations is automatically and rigidly reduced by every increase in working costs, cannot be too strongly emphasised.

BURDENS PASSED ON TO THE MINES.

The merchants supplying goods to the gold mining industry expect to make increased profits at least proportionate to their increased expenditure due to the war; the subsidiary industries dependent upon the gold mining industry similarly increase their charges; the employees ask for increased remuneration equal to the increase in the cost of living, and thus generally the whole community passes on its own war burdens to the gold mines, where they remain. And now as regards a large section of the industry we have reached the limit, broadly speaking, as to what we can do on the question of wages, and indeed on working costs as a whole. It is essential, therefore, for all of us to clearly realise the position in which we stand, to realise it if we can from the point of view of the good of the community as a whole, and if we cannot do that, then at least to realise it from the point of view of our own interests. And this applies not only to any demands from the industry's workmen for increased wages, but with equal force to the merchant who supplies the industry with the stores it consumes, and last but not least to the merchant and storekeeper who supplies the employees of the industry with food, clothing and other necessities of life.

Examined by Mr. Taylor, Mr. Wallers said that the remarks in regard to the storekeeper being affected would equally apply to the Municipality.

Examined by Mr. Lucas, Mr. Wallers said the wage of £3 12s. to mechanics was the fixed day's pay on the mines.

PASSING ON OF COST.

You have been rather fortunate then compared with the town shops?—The town shops can pass on their extra cost. They simply charge us more for the work. We cannot charge more for our product.

Rather a useful product?—Yes, very.

You say the prosperity of the Rand would be destroyed?—I say that if in the mines we had to pay higher wages on the same basis as the town, it would mean the closing down of a number of mines distributing £9,000,000 per year.

Supposing that by lowering wages you would increase the number of mines, would that increase the prosperity of the Rand?—I don't believe in low wages.

Do you consider £8 2s. a high wage—I consider it an excessive wage.

For the mines?—Yes.

For the dangerous work the men do?—Not as dangerous as the work in some other mines in the world. We are speaking about mechanics.

Examined by Mr. Crawford, Mr. Wallers said that the collapse of a number of the mines would mean the collapse of a number of subsidiary industries as well. The mines did a certain quantity of their engineering work themselves in their own works, while a good deal, too, was sent to the town shops. But, of course, if the disparity in wages continued there might be a possibility of the mines extending their workshops to do all their own engineering work.

Replying to Mr. Buckle, Mr. Wallers said that the men in the mines did not like monthly contracts, as they considered that such contracts deprived them of the right of immediate action.

Manicaland Gold Output.

The mineral output of the Territory of the Companhia de Moçambique (Manicaland) for the month of April, 1918, was as follows:—Alluvial: Gold won, 446 fine ozs.; cubic metres dredged, 42,917; value, £1,848 16s. 2d. Copper: Copper declared, 22.5 tons; value, £2,250.

Zaaiplaats Tin.

The Zaaiplaats results for the month of May were as follows: Days run, 27; concentrates won, 50 long tons; estimated profit for the month, excluding Government taxes and directors' fees, £8,303 13s. 8d.; capital expenditure, £75 11s. 5d.

Barnato Group.

The results of operations of the Barnato group for May are as follows:—

Mine.	Stamps.	Tons Crushed.	Revenue from Gold
Consolidated Langlaagte ...	100	46,500	£55,399
Ginsberg	75	13,790	12,856
Glencairn	160	19,750	13,910
Government Areas	190	112,000	179,934
Langlaagte Estate	200	45,700	53,058
New Primrose	140	18,300	16,166
New Unified	60	13,200	12,636
Randfontein Central	600	158,100	169,984
Van Ryn Deep	80	42,300	91,727
Witwatersrand	215	40,800	46,327
Totals and averages ...	1820	510,440	£651,997
April totals	1810	495,490	£636,056

Mine.	Total Working Costs.	Working Costs per Ton Milled. Shillings.	Gross Profit including Sundry Revenue.
Consolidated Langlaagte ..	£40,543	17.438	£15,045
Ginsberg	12,497	18.124	456
Glencairn	13,081	13.246	999
Government Areas	109,779	19.603	70,756
Langlaagte Estate	41,613	18.212	11,568
New Primrose	15,163	16.572	1,099
New Unified	9,773	14.807	2,905
Randfontein Central	154,849	19.588	15,982
Van Ryn Deep	42,633	20.157	50,091
Witwatersrand	36,735	18.007	11,074
Totals and averages ...	£476,666	18.677	£179,975
April totals	£476,110	19.218	£164,186

Monthly Gross Profit for 1918.—January, £190,628; February, £159,225; March, £136,496; April, £164,186; May, £179,975.

Randfontein Central.—Water position continues to improve.

Consolidated Gold Fields Group.

The following are particulars in regard to the outputs and profits for the month of May of the undermentioned companies of the Consolidated Gold Fields group:—

Company.	No. of Stamps.	Tube Mills.	Tons Crushed.	Gold declared. Fine Ozs.	Total Profit
Simmer and Jack ...	320	7	59,600	14,923	£9,660
Robinson Deep ...	120	8	48,500	15,839	9,214
Knights Deep ...	400	11	99,000	17,764	5,009
Simmer Deep ...	220	10	43,400	10,809	432
Jupiter	80	5	21,600	6,809	218
Sub Nigel	30	2	9,650	6,320	8,444
Totals	1170	43	281,750	71,964	£32,977

The sundry revenue included in the above total declared profit is as under: Simmer and Jack, £1,500; Robinson Deep, nil; Knights Deep, £1,804; Simmer Deep, £503; Jupiter, £537; Sub Nigel, nil; total, £4,344.

Gold Reserve.—Simmer and Jack, 900 ozs.; Sub Nigel, 2,991 ozs.; total, 3,891 ozs.

SOUTH AFRICAN INDUSTRIES UNDER WAR CONDITIONS.

Important Statement by the Industries Advisory Board.

IN concluding the report recently issued, and reviewed elsewhere in our columns, the Industries Advisory Board remarks:—It is generally conceded that the industrial activities of the Union have now emerged from the position which they have occupied for many years, and that they are regarded with greater interest by the public in general. The conditions created by the war have rendered the importation of all goods more difficult than usual, and that of some goods altogether impossible. Consequently, South Africa has been thrown largely upon its own resources, and there can be no doubt that the industries of the country generally have responded to the demands made upon them in a manner that is most encouraging to anyone who has taken an active interest in this aspect of the country's development. The change in public opinion in reference to this matter has become more and more marked during the last few years. At one time the Government, the mining industry, and the agricultural community, were all sceptical as to the possibilities of industrial development other than in respect of mining and agriculture. The commercial community generally regarded the South African manufacturer as a hindrance rather than a help. But only as recently as October last the Congress of the Associated Chambers of Commerce, representing the whole of the commercial community of South Africa, passed the following resolution by an overwhelming majority:

"The congress recommends that the post-war policy of the Government should include: (a) A policy of encouraging industries by means of tariffs or bounties, whichever is better suited to the nature of the industry; (b) a permanent Advisory Board, to make recommendation to Parliament regarding any adjustments considered necessary in the Customs tariff and the payment of bounties; (c) a complete survey of the natural resources of South Africa, with a view to encouraging their exploitation, particularly of the iron ore resources of the Union; (d) land settlement and irrigation schemes; (e) a publicity campaign to start immediately peace is concluded, for advertising the resources of the country, with a special view to increasing the number and strengthening the position of the white population."

This resolution was debated and approved by the responsible representatives of the entire mercantile community of the Union, and their action has been recently endorsed by the South African Agricultural Union, which, at its annual conference, unanimously passed the resolution recorded below:

"Having heard the interesting, lucid, and instructive address of the Secretary for Mines and Industries, this congress congratulates the Government on the recent work accomplished in ascertaining the value of raw materials in the Union suitable for manufacturers, and promoting the establishment of factories in South Africa for local wants and overseas trade. Government is urged to further this good work of industrial expansion and agricultural development, so that South Africa may become a self-supporting country, with opportunities for the training and profitable employment of expert white labour, and thus secure a share of the markets now existent in other countries, which, after the conclusion of the present world war, will surely offer unlimited openings for South African and other manufactured products."

The Government, as is now well known, has for some time past taken a really active interest in industrial development. The mining industry is now using South African manufactures very freely indeed, in place of the imported article, and although this may be largely due to present conditions, no one conversant with the ebb and flow of trade can have any other opinion than that a great deal of the local supply and demand thus created will remain even after present war conditions disappear. One of the most remarkable features of the present world upheaval is the intense interest that all the Governments of the world are now

taking in the industrial and commercial affairs of their respective countries. It is clearly recognised that so far from it being the duty of a Government to hold itself aloof from these matters, and to allow private enterprise, completely unaided, to do whatever it can, it is the first duty of a Government to abandon the inactive position hitherto occupied in favour of one of considered activity, not only in reference to the production of raw materials, but also in regard to the manufacture of articles therefrom. The powers of a Government to assist and stimulate production and manufacture are admittedly enormous, and it is not too much to say, judging by latter-day experience, that the success, or otherwise, of a country's industry and commerce depends primarily upon the activities of its Government. The Board desires to place on record its recognition of the initiatory steps that the Government of the Union has already taken in this direction, and submits for consideration that the time has now arrived for a further step being made in the same direction. The production, for the first time, of a Government *Journal of Industries*, the increase in the volume of enquiries, the co-ordinating work being carried out by the Department of Industries in connection with the exploitation of raw materials, the finding of markets, the carrying out of investigations regarding manufacturing processes, all represent activities which are to-day essential to any organised Government service, and will amply repay the country. In addition to the above, as an immediate result of war conditions, and in order to conserve the country's resources, the control of exports has become a necessary feature of the Department's activities, whilst the country's requirements in the matter of importations from overseas is now regulated and provided for by a system of priority recommendations made to the overseas exporting countries. So far as Great Britain is concerned, priority recommendations are made to the Minister of Munitions for manufacture from classes of materials which cannot otherwise be obtained, which are absolutely essential, and for which substitutes cannot be found in the Union. In dealing with stores and equipment for the Witwatersrand and Natal mines, pools have been formed, and, in addition, a large organisation has had to be created for dealing with the country's general trade requirements. In regard to the considerable number of important articles drawn by the Union from the United States, Canada, and India, the Department carries out a system of priority recommendation for shipping space, which has now attained large dimensions, and is of great importance in securing the essential requirements of the Union. The whole of the organisation has had to be taken in hand and put into working order since May, 1917, and a great strain has naturally been thrown on the Department. But it is evident that in the world conditions which will prevail for some years after the actual conclusion of hostilities in regard to freight, food shortage, and re-establishment, the system, with possible variations, will have to be continued and maintained on a proper footing for some time to come. To provide the necessary Government control and recognition of the value to the State of this Department, it has been frequently urged that a separate portfolio of Industries, Commerce and Labour, should be established. Consideration of the intimate relation existing in the base metal industries, coal by-product industries, and others; between the investigation of the mineral deposits by the geological survey; and the development of industrial and commercial needs by the Industries Section, together with the labour aspects of mining and industrial matters controlled by the Labour Department, all go to show that it would be most unwise to separate the Department of Mines from that of Industries, and that the close co-operation of the offices of these four sections of the Department under one portfolio is most essential to efficiency. The Board is satisfied that the organisation is proceeding upon right lines, but it is strongly of opinion that

the Section of Industries should, as including all the others, be recognised as the key to the grouping of the departments under it, and that the portfolio should be named accordingly. The responsible head would then be the Minister of Industries, and the sections would be grouped under the headings of Mines, Manufacturers, Commerce, and Labour. The Board cannot refrain from pointing out that the ultimate aim of producers and manufacturers alike must of necessity be the securing of a successful position in the world's markets. Many products and a few manufactures are at present being exported, and, as a matter of experience, it has been found that a regular and high standard of quality is essential to success, and that producers receive their reward in the increased price which articles possessing these qualities always command. The Board desires to emphasise the importance of the technical and industrial education of the youth of the country. Industries depend very much on the technical training of operatives, and it is of primary importance that young men and women who enter the industrial ranks should be afforded the fullest opportunities for acquiring the technical skill and experience necessary to enable them to occupy responsible positions. Hitherto, the skilled artisan and the still more highly trained technical man have come from overseas, with the result that the South African-born youth has been forced into occupations giving but little opportunity for advancement. In the absence of the indentured apprentice system, technical education affords the only means of enabling a youth to take his place in the industrial system. The success of the Union's Technical Colleges and Trade Schools, so far as they have gone, has been extremely encouraging, but it needs a wider vision and a truer realisation of their importance on the part of the public in order to enable them to achieve the purposes for which they were established. The Board is aware that the present Minister of Education, the Hon. F. S. Malan, has given technical education very considerable thought and much encouragement, but the general principle

of adequate Government support, stimulated by a deep and sustained interest on the part of the public, needs more positive recognition. For instance, steps might be taken to establish, in centres interested in particular industries, further means of instruction by the appointment of instructors and the establishment of facilities for research work in connection with these industries. It is thought highly probable that certain industries such as the leather industry, the sugar industry, the milling industry, and others might, if approached, be prepared to assist in the foundation of the necessary means of instruction. The question of technical education is receiving the earnest consideration of every Dominion Government, and the Board desires to emphasise its importance in relation to industrial development, and to urge upon the Government the necessity for providing adequate and efficient means for meeting the needs of the rising generation in this direction. In conclusion, the Board desires to place on record its appreciation of the valuable service rendered to it at all times and under all circumstances by its Secretary (Mr. A. Canham), and to express its indebtedness for the sympathetic manner in which its recommendations have always been received by the Secretary of the Mines and Industries Department (Mr. H. Warrington Smyth).

The Town Council of Wynberg is inviting tenders for the supply, erection and setting-to-work of the following plant: Steam plant or suction gas plant, with pump capable of raising about 200,000 gallons per hour against a head of about 400 feet. All valves and fittings required in connection with the plant are to be supplied. Tenderers are to state price for a single set and for duplicate sets. For further particulars, apply to the Town Clerk, Wynberg, Cape Province, or to Mr. Thomas Stewart, Engineer-to-the-Works, P.O. Box 712, Capetown. Tenders to be lodged with the Town Clerk, Wynberg, by 4 p.m. on Monday, 24th June, 1918, marked "Plant."



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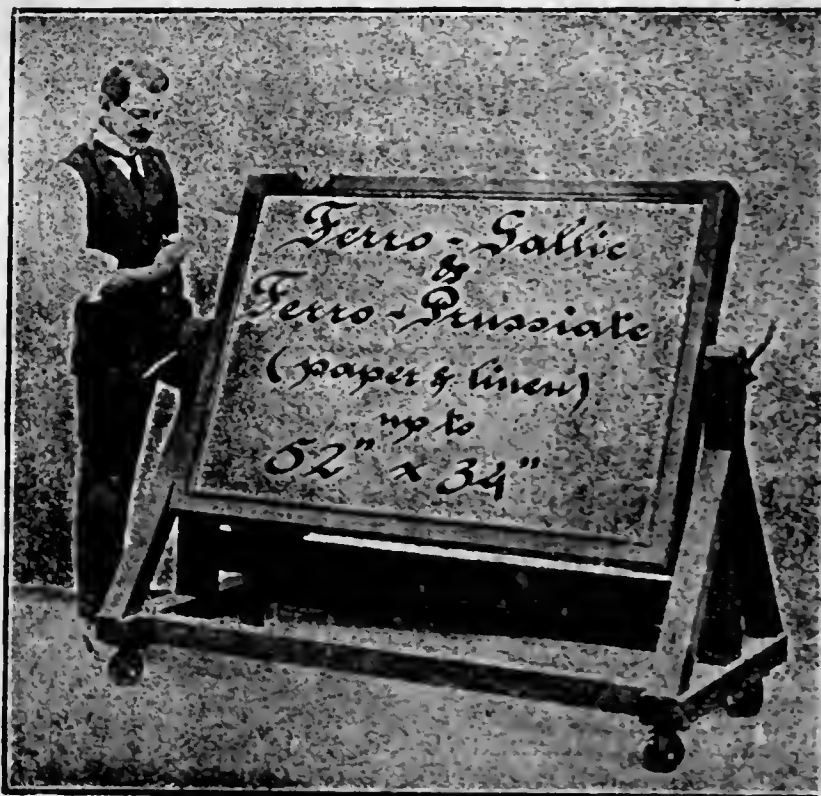
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THE MAY GOLD OUTPUT IN DETAIL.

Increase of £102,870—Some Notable Improvements.

DURING the past month the Transvaal mines produced 741,317 ozs. of fine gold, as against 717,099 ozs. in the shorter month of April—an increase of 24,218 ozs., or in value £102,870. The official figures for the two months are as follow:—

Total output	741,317 ozs.
Value	£3,148,915
Increase	24,218 ozs.
Value	£102,870
Witwatersrand	720,539 ozs.
Value	£3,060,655
Increase	22,806 ozs.
Value	£96,874
Outside Districts	20,778 ozs.
Value	£88,260
Increase	1,412 ozs.
Value	£5,996
Stamps	9,031
Increase	20

The following increases are shown: New Modderfontein, £14,255; Government Areas, £10,020; Springs Mines, £6,975; New Kleinfontein, £6,483; City Deep, £5,649; Brakpan, £5,523. The principal decreases are: Durban Deep, £3,577; Durban Roodepoort, £2,766; and Randfontein Central, £1,295. All the mines of the outside districts have sent in satisfactory returns with the exception of the Sheba, which shows a decrease of £3,296.

THE STAMP POSITION.

The number of stamps dropping on the Transvaal gold-fields in May was 9,031, as against 9,011 in April, an increase of 20. The official figures are:—

	Rand.	Outside.	Total.
May	8,706	325	9,031
April	8,686	325	9,011
Increase	20	—	20

NATIVE LABOUR.

The native labour figures for the past three months are:

	March.	April.	May.
On gold mines	183,055	182,492	179,879
On coal mines	11,076	11,322	11,211
On diamond mines	4,745	4,753	4,773
	198,876	198,567	195,863

INDIVIDUAL RETURNS.

	Value.	Increase.	Decrease.
Aurora West	£17,042	£752	—
Bantjes	25,011	1,954	—
Brakpan	102,396	5,523	—
City and Suburban	40,001	—	£951
City Deep	123,256	5,649	—
Con. Langlaagte	55,309	—	539
Con. Main Reef	74,063	1,987	—
Crown Mines	231,437	1,014	—
Durban Deep	38,956	—	3,577
Durban Roodepoort	7,569	—	2,766
E.R.P.M.	137,975	—	675
Ferreira Deep	74,191	1,861	—
Geduld Proprietary	64,816	3,827	—
Geldenhuis Deep	61,638	29	—
Ginsberg	12,858	1,487	—
Glencairn	13,911	972	—
Government Areas	179,934	10,020	—
Jupiter	26,799	—	917
Knight Central	30,286	1,869	—
Knights Deep	75,457	4,346	—
Langlaagte Estate	53,058	1,856	—
Luipaardsvlei	21,332	990	—
Meyer and Charlton	85,180	—	195
Modder B.	106,537	4,824	—

	Value.	Increase.	Decrease.
Modder Deep	88,242	713	—
New Goch	15,428	—	81
New Heriot	16,511	—	429
New Kleinfontein	83,324	6,483	—
New Modder	155,254	14,255	—
New Primrose	16,166	1,847	—
New Unified	12,637	501	—
Nourse Mines	54,452	—	204
Princess Estate	25,592	—	625
Randfontein Central	169,986	—	1,295
Robinson	50,935	5,599	—
Robinson Deep	67,279	3,572	—
Roodepoort United	25,189	—	162
Rose Deep	65,644	1,920	—
Simmer and Jack	59,991	3,386	—
Simmer Deep	45,914	1,130	—
Springs Mines	82,113	6,975	—
Van Ryn Estate	35,902	366	—
Van Ryn Deep	91,730	—	63
Village Main	38,068	514	—
Village Deep	77,028	5,785	—
West Rand Consolidated	37,847	310	—
Witwatersrand	46,326	1,164	—
Wit. Deep	42,286	3,364	—
Wolhuter	41,794	2,796	—
Miscellaneous	5,915	213	—

OUTSIDE DISTRICTS.

Sub Nigel	26,846	1,508	—
Barrett	1,177	434	—
Sheba	595	—	8,296
Glynn's	8,967	1,958	—
T.G.M.E.	24,934	2,493	—
Miscellaneous	25,741	2,899	—

GROUP PROFITS.

The group profits for the past three months are as follows:

	March.	April.	May.
Central Mining	276,812	309,029	330,799
Barnato	136,496	164,186	179,975
Gold Fields	28,711	31,837	32,977
General Mining	27,854	26,801	27,813
Mines Selection	70,634	71,165	76,548
Goerz	66,970	68,659	69,051
	607,477	671,677	717,163

MONTHLY RETURNS.

	Ozs.	Value.
January	714,132	£3,033,653
February	659,759	2,802,477
March	696,281	2,957,614
April	717,099	3,046,045
May	741,317	3,148,915



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THE NON-METALLIC MINERALS OF RHODESIA.*—II.

Mica.—The mica of commerce is of two principal varieties which differ in their mode of occurrence and are used for quite different purposes, although they both owe their value to their property of splitting into an indefinite number of smooth sheets which can be bent without breaking. Muscovite, white, or potash mica, is nearly colourless and perfectly transparent in thin sheets. It is therefore largely used for lamp chimneys, stove fronts and similar purposes. Muscovite is found exclusively in coarse pegmatites, associated with the great granite masses. It is this variety which is chiefly found in Rhodesia. Phlogopite, which is a brownish mica, is fairly transparent in quite thin sheets, and is used as a non-conductor in electrical work. It occurs in metamorphosed limestones and also in certain basic igneous rocks, but not in rocks allied to granite. It has not been recorded in large sheets from Rhodesian localities, though known to occur in crystalline limestones, *e.g.*, at Gwanda and in Northern Rhodesia. To put them into marketable form, the naturally occurring "books" of mica must be split carefully into smooth sheets about 1/16th to 1/8th inch in thickness. They are then trimmed by means of a strong pair of scissors or shears into approximately rectangular pieces, without any cracks or flaws. The colour of the mica is not of much consequence, but very dark material is not likely to be of value owing to the probability that it contains too much iron for it to be used as an efficient insulator. Cracked, crumpled or much stained sheets are valueless. The sizes in commercial demand are from 2 in. x 2 in. or 3 in. x 1 in. to 8 in. x 12 in., and the prices in 1917 ranged from about 1s. per lb. and upwards according to size. Sheets 6 in. x 2 in. were worth 2s. 6d. or more per lb., and a deposit with a good proportion of sheets that size would be well worth investigation. Trimmed samples weighing ½ lb. are sufficient for report and valuation.

Ochres.—The materials known as ochre, umber, etc., are chiefly valuable for the manufacture of paints. They are friable forms of iron oxide, the ochres being more or less pure while the umbers consist largely of various earthy substances. Red ochre is the powdery form of hæmatite, the common oxide of iron, while yellow ochre is the hydrated oxide. Both occur at numerous Rhodesian localities. The red oxide of commerce is by no means always the natural mineral; it is often a product of the roasting of pyrites for making sulphuric acid or other purposes. Yellow ochre is not made artificially, but light red paint is made from calcined yellow ochre. Raw umber is a natural admixture of clayey substances with oxide of iron; burnt umber is prepared from the same material after calcining. Attention may be drawn to the varieties of laterite or surface ironstone so widely distributed over the country as a cheap and abundant source of ochreous materials. Laterite usually contains considerable amounts of detrital impurities, but these can be separated with little trouble by screening after coarse crushing. The friable ochre goes through with the fines, while nearly all the impurities, being much harder, remain amongst the coarser residue.

Salt is reported from many parts of the low country in Rhodesia and is worked by the natives at a number of localities. It is probable that it is generally derived from certain grey shales amongst the rocks of the Waterberg system (see F. P. Mennell, *Mineralogical Magazine*, 1914, p. 113). In the Sabi Valley the natives dig the earth from certain pans

* From the Report of the Rhodesia Munitions and Resources Committee.

situated on the outcrop of these shales and boil it with water in earthen pots. The muddy substance thus obtained is poured upon thick layers of grass laid on wooden stagings, and the clarified liquor trickles through into receptacles placed beneath. The weak brine thus obtained is concentrated by boiling and finally evaporated to dryness. Whether any of the salt deposits are sufficiently extensive to warrant working by less primitive methods cannot at present be stated, but they have as a general rule the disadvantage of being situated in very remote localities.

Soda.—Natural deposits of carbonate of soda are known to occur here, especially in certain pans in the Wankie district. It is usually contaminated with salt, but this would be no bar to its employment in soap-making, for which an admixture with salt is required. Moreover Transvaal experience shows that salt may disappear as the deposits are followed down. Little is known as to the extent of the deposits. It should be remembered that they are apt to be obscured by drifted earth, sand, etc., or by dried mud, and that a certain amount of work would be required before any definite opinion could be formed as to their value.

Talc.—Deposits of steatite or soapstone as well as the purer forms of talc are widely distributed amongst the Rhodesian metamorphic rocks of the plateau, often in localities close to the railway. It is a useful material for firebricks and furnace linings, and for making vessels to resist acids and other chemicals, especially as it can be readily cut into any required shape by means of an axe, or even a knife. Another use to which it might be put locally is the manufacture of water paints. The demand for the mineral has been increased by the war, and it has begun to be exported from the Transvaal. The usual price seems to be about £5 to £6 per ton, but as much as £40 per ton is stated to have been obtained for some of the material exported. The most valuable variety is fibrous talc; this is of a scaly appearance in the raw state and more or less translucent. It assumes a fibrous character, often surprisingly perfect, when pulverised. It is absolutely necessary to send a small consignment to England in order to get a correct idea of its value for export. The material must be finely ground and subjected to a winnowing process in order to remove all grit, the absence of which is absolutely essential.

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THE WEEK IN THE SHAREMARKET.

Business Restricted—Prices Generally Lower.

DURING the course of the afternoon on Friday Zaaipiaats receded to 16s. 6d., but subsequently recovered to 16s. 11d. The general tendency was also somewhat easier. There was no improvement on Saturday morning, except in City Deeps and Cloverfields. Modder East lost ground, and Zaaipiaats, after a commencing sale at 16s. 9d., closed at 16s. 7d., subsequently dropping to 16s. 3d. Monday morning brought no improvement; rather the contrary, for Geduld Proprietary, Government Areas and Springs were all weaker. Business was restricted and no transactions of any value were put through. After the call prices dwindled away and continued doing so till the close. The market was again weak on Tuesday, with no prospect of improvement while the rumbling growls of discontented labour continue being heard. The doctrine apparently held by the majority of the "orny 'anded" is that they and they only shall not be sufferers by the war, and that, pay who may, nothing is to come out of their pockets. In the forenoon Brakpans fell to 86s., after standing for weeks past at 90s. buyers, the explanation given for the drop in a certain quarter being that it was "an artificial and superficial price." Wednesday morning brought negative comfort to holders of stock, in so far that prices fell no longer. In fact, Springs Mines and Government Areas were the turn harder and Van Ryn Deeps and Sub Nigels unchanged. Anglo-Americans also made some recovery. After the call Springs were sold at 68s. 6d. and New Modders at £22 17s. 6d. Prices in the chief stocks kept firm throughout the day, and Anglo-Americans advanced to 29s. 6d. sales and buyers. On Thursday morning the only important stock showing improvement was Van Ryn Deep. Springs were unchanged, Government Areas weaker, and the Modder group passed without a single sale being effected. Tins were also easier. New Areas made a small recovery. The general absence of business has been reflected in the dealings in outside stocks. The following sales took place: Southern Van Ryn, 13s. 6d. to 12s. 6d.; Phoenix, 10d.; Compound Diamonds, 3s. to 3s. 3d.; Monteleo, 40s. to 42s. 6d.; S.A. Alkali, 55s. to 57s. 6d.; Sakalavas, 9s. to 8s. 6d. Sellers of Union Tins, 4s. 6d.; New Farms, 1s. 9d. to 2s. 2d.

The following were the changes in price on Friday morning, from which it will be noted that Rooibergs and Zaaipiaats were decidedly weak:—Sales: Cloverfields, 8s. 2d.; Dagga Options, 6s.; Leeuwpoots, 21s. 6d. ex London; New Area, 17s. 6d.; Rand Colliery, 2s. 9d.; Rooibergs, 11s. 9d. and 11s. 7d.; Springs, 67s. 6d. and buyer; Zaaipiaats, 16s. 1d. Buyers and sellers: African Farms, 8s. 9d.—9s.; Bantjes, 2s. 7d.—2s. 9d.; Brakpan, 85s. buyer; Cloverfields, 8s. 3d. buyer; Lydenburg Farms, 8s. 3d.—8s. 9d.; Lace Props, 11s. seller; Modder Bs., £7 6s. 3d.—£7 5s. 6d.; Modder Deeps, £7 4s. 6d.—£7 5s. 6d.; New Modders, £22 15s.—£22 17s. 6d.; Heriots, 20s. seller; Kleinfonteins, 8s. 9d.—9s. 3d.; Rose Deeps, 20s. buyer; Transvaal Consolidated Lands, 13s.—14s.; Wit. Deeps, 7s. 6d.—8s.

	Frid., 7th.	Sat., 8th.	Mond., 10th.	Tues., 11th.	Wed., 12th.	Thurs., 13th.
African Farms	9 6†	8 9*	8 9*	8 6*	9 0*	8 6*
Anglo-Amer. Corp. . .	25 0*	26 0*	26 6	23 9*	27 6	29 6
Apex Mines	7 6*	7 9†	7 9†	7 6†	7 0†	—
Aurora Wests	9 6*	—	—	9 0*	10 0†	—
Bantjes Cons.	—	3 0	3 0†	2 9	2 9	2 8*
Brakpan Mines	—	92 0†	92 0†	90 0†	85 0*	84 0*
Breyten Collieries . .	—	—	—	—	12 0†	—
Brick and Potteries . .	—	3 9*	—	3 9*	—	3 9*
Bushveld Tins	0 9*	0 9*	0 10†	0 9*	—	0 9*
Cassel Coals	29 0*	29 0	—	—	—	—
Cinderella Cons. . . .	—	—	3 0*	3 0*	—	3 0*
City and Subs.	13 0*	13 3*	13 6*	13 0*	13 0*	13 6†
City Deeps	55 6*	56 0*	56 0*	56 0*	56 3*	56 0*
Cloverfield Mines . . .	8 2*	8 6*	8 0*	8 0*	7 10*	8 0*
Clydesdale Colls. . . .	17 0*	17 6*	17 0*	17 0*	17 0	17 0*
Concrete Const.	6 0*	6 0*	6 0	6 0*	6 0*	6 0*
Con. Investments	18 0*	—	18 0*	18 0*	18 0*	18 0*
Con. Langlaagtes . . .	—	17 0†	17 0†	—	—	—
Con. Main Reefs	13 0	13 0*	13 0*	13 0*	13 0*	13 0*
Con. Mines Selection . .	26 0†	25 0	—	25 0†	24 6*	25 0†
Coronation Coll's. . . .	33 0*	—	33 0*	33 0*	32 6*	33 6*
Coronation Freeholds .	1 1†	0 10*	1 1†	0 11*	0 11*	0 11*
Crown Diamonds	3 6*	3 0*	3 0*	3 0*	3 0†	3 0†
Crown Mines Debs. . .	£98*	—	—	—	—	—

	Frid., 7th.	Sat., 8th.	Mond., 10th.	Tues., 11th.	Wed., 12th.	Thurs., 13th.
Daggafontein Mines . .	23 0*	23 0*	23 0*	23 6†	22 9*	22 6*
Do. Options	7 3†	7 0*	7 3†	7 3†	5 0*	—
Durban Road.	—	—	9 6†	9 6†	9 6†	—
East Rand Coals	1 11*	1 11*	1 11*	2 0	2 0	1 11*
East Rand Deeps	1 0†	0 9*	0 10*	0 10*	—	0 11*
East Rand Minings . . .	15 0*	15 0*	15 0*	15 0*	—	—
East Rand Props. . . .	3 6†	3 3†	3 3†	3 6†	3 0*	3 0
East Rand Debs.	—	£57½*	£55*	—	£57½*	—
Frank Smith Dmds. . . .	2 9	2 9*	2 9	2 9*	2 10	2 9*
Geduld Props.	39 0*	39 0	38 6	37 6*	38 0*	37 9*
Glencairns	—	1 3*	2 0†	2 0†	—	—
Glynn's Lydenburgs. . .	19 6†	19 0*	19 0*	—	—	19 0*
Govt. Areas	74 6*	74 3	74 0*	73 3	73 6	73 3
Jupiters	3 0*	3 0*	3 0*	3 0*	3 0*	3 0*
Klerksdorp Props. . . .	—	2 0*	2 0*	2 0*	2 0*	2 0*
Knight Centrals.	3 5	3 3*	3 6†	3 1*	3 1*	3 1*
Lace Props.	11 3*	11 3*	11 3	10 9*	10 9*	10 9*
Leeuwpoot Tins	22 9*	23 3	23 0*	22 0*	22 3*	21 9
Lydenburg Farms	9 0*	9 1	8 10*	8 6	8 6*	8 6*
Main Reef Wests	—	—	—	—	2 7*	2 6*
Meyer and Charltons . .	—	100 0†	—	—	100 0†	100 0†
Modder B's	150 0*	150 0*	150 0*	149 0*	148 9*	146 3*
Modder Deeps	145 0*	146 0*	146 0	146 0	145 0*	144 0*
Modder Easts	19 6	19 3	19 3	19 0	19 0	18 9*
Do. Options (3 yrs.) . .	6 1	6 0	5 10*	5 9*	5 9*	—
Do. Options (4 yrs.) . .	7 6*	7 6a	7 6	7 2*	7 3*	7 6†
Natal Navig. Colls. . . .	—	—	19 0*	19 0*	19 0*	19 0*
National Banks	—	270 0*	—	—	—	270 0*
New Boksburgs	1 4†	1 4†	—	—	—	—
New Eland Dmds.	27 0a	29 0†	—	—	—	25 0*
New Era Cons.	10 0*	10 0*	10 0*	10 0*	10 3†	10 0*
New Geduld Deeps	5 10*	5 10*	5 10*	5 10	5 6*	—
New Kleinfonteins	10 0*	10 2	10 1½	—	—	9 3
New Modders	465 0	460 0a	452 6*	450 0*	455 0*	460 0†
New Unifieds	5 3*	5 3*	5 3*	5 3*	5 6*	5 6*
Nigels	4 3*	4 3*	4 3*	4 3*	4 3*	4 3*
Nourse Mines	17 0	18 0†	18 0†	18 0†	17 0*	17 0*
Premier Preferreds	—	—	150 0†	150 0†	—	—
Pretoria Cements	—	116 0*	117 6*	117 0*	120 0a	117 6*
Princess Estates	2 1†	2 0	2 1†	2 1†	1 10*	1 10*
Rand Collieries	2 9*	2 9*	—	2 9*	2 9*	2 9*
Rand Klips	9 3	9 3	9 0*	8 10*	8 10*	—
Rand Nucleus	1 2*	1 2*	1 2*	1 2*	—	—
Rand Select. Corp.	90 0*	90 0*	90 6*	90 6*	90 6*	92 0†
Randfontein Deeps	—	—	—	—	4 0†	4 0†
Randfontein Estates . . .	12 3*	12 3*	12 3*	12 3*	12 0	12 0*
Rooibergs	13 6	13 3*	13 3*	13 3*	13 3	12 9
Roodepoort Uniteds	—	3 0*	—	3 0*	—	3 0*
Rose Deeps	—	—	—	—	—	19 0*
Simmer Deeps	1 9*	1 11†	1 9*	1 9*	1 9*	1 9*
S.A. Breweries	26 0*	27 0†	—	27 0†	—	27 0†
S.A. Lands	5 10*	5 10*	5 9*	5 8	5 8*	5 8*
Springs Mines	68 9	68 6	68 0	67 6*	68 0	68 0
Sub-Nigels	25 0*	25 0	24 9*	24 9	24 7½	24 7
Swaziland Tins	32 6†	30 0*	32 0†	32 0†	32 0†	—
Transvaal Lands	—	12 6*	—	12 6*	12 6*	—
Van Ryn Deeps	69 3	69 6	69 3	69 3	69 0*	69 6
Village Deeps	17 0†	—	—	18 0†	18 0†	17 6*
Village Main Reef	11 0*	12 0*	12 0*	11 6*	11 0*	12 0*
Welgedachts	—	25 0*	—	—	—	—
Western Rand Estates . . .	2 3†	2 3†	1 9*	1 6*	1 10*	—
Witwatersands	22 6*	—	22 6*	22 6*	22 6*	22 6*
Wit. Deeps	7 3*	7 0*	7 0*	7 1*	7 1*	7 3*
Wolbeters	3 6*	4 0†	4 0†	3 6*	3 9*	4 0†
Zaaipiaats Tins	17 1	16 7	16 9	16 9	16 9*	16 6
New State Areas	17 3	17 0	17 0	17 0a	16 9*	17 3*

Union 5 per cent.: June 7th, £100 16s. 3d.; 8th, £100 17s. 5d.; 10th, £100 17s. 6d.*; 11th, £100 17s. 6d.*; 12th, £101*; 13th, £100 17s. 6d.

*Buyers. †Sellers. aOdd lots. sEx London.

New Patents.

820. Peter Hollyoak Ross.—A process for utilising the by products of gold mines—namely, finely ground Silicion, sulphur, and iron (commonly known as sands in slimes) in the making of a hard soap for hand-cleaning purposes.
821. The Commercial Research Co.—Manufacture of chlorhydrin.
822. Joseph Fleurichon Gonseau and Truter Daniel Drever.—Improvements in devices used for fixing brake-gears of vehicles.
823. William Henry McGeever and William King.—Improved means for use in connection with the staff working of rail or tramways, and method of using same.
824. Sydney Brooks-Bilibrough.—Improvements in the distillation of coal, oil shales, and other similar carbonaceous materials and in retorts therefor.
825. William Vaughan and Henry Wetzlar.—Central wire non-threading through fencing standard.

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THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.**Aftermath of the Strike Crisis—Turpentine Position Still Acute—White Lead: Another Factory—Paints and Substitutes—Iron and Steel—Mine Plates Used in American Ships.**

BUSINESS has been affected this week, because of the mining employees' meeting on Saturday evening last. The spur for that gathering was the outstanding fact that the Municipality had granted the engineers at the Power Station £8 2s. per week, with overtime and holidays thrown in. Naturally other trades, also, want more. The engineers on the mines arranged to take a ballot to decide as to what demands should be made. The result will be known at the end of this week; in the meantime there is a very dubious feeling permeating the commercial world, because business men are face to face with the very real prospect of the poorer grade mines closing down. It is no figure of speech to state that consternation prevails as to the consequences. However, there is a more hopeful feeling at the time of writing as compared with the beginning of the week, as several strikes and prospective ones have been fixed up between masters and men which show a spirit of conciliation that may assist the town and reef through the crisis which undoubtedly exists. There is another "straw" to indicate a probable assistance to the mines. According to the cables, the *London Times* has stated that more ought to be paid for the gold on account of the greater increased cost of production. The movement originated in Australia and there may be something in it, and it may take the shape of a war bounty or war subsidy by the Imperial Government for all producing mines. To say the least it is a healthy sign and possibly may help us over a nasty stile in the history of the Witwatersrand. One reason given for dull business is that the system of book-keeping has been automatically transferred from the end of December to the end of June, to more conveniently comply with the income tax returns, which have to be made up to June 30th.

TURPENTINE, WHITE LEAD, OILS AND COLOURS.

The outstanding feature is still the turpentine position, as statements are made that there is no genuine turpentine in existence in South Africa. However, that is not quite

true, as the high price of about 90s. per case has brought several decent sized lots forward, also a fairly large lot has just arrived at the coast from America, most of which, it is said, is under option to a Johannesburg manufacturing house. There are substitutes for painters, as the mixing of white spirits with the second quality of turps has been adopted and there are other methods which will be subsequently referred to, on the authority of an expert from overseas, where painters are in a somewhat similar position as ourselves. Canadian linseed oil has also arrived at the Cape, which has eased the position for the present. White lead is also dribbling through from Canada, where there are two exporters who are giving special attention to the South African trade. One peculiar thing about white lead is that hitherto unheard-of sources have come into the trade, as during this week two lots were on offer, one from a rubber tyre merchant and another from a solicitor in town. An important feature about white lead is that an altogether new factory is now being erected and nearing completion in the Transvaal for manufacturing white lead. Further information is promised in about a fortnight's time, but judging from the acumen of the Johannesburg commercial firm who is supplying a substantial amount of the capital, the scheme looks very promising. The following retail list is publicly exhibited in a leading Johannesburg store: Linseed oil, 15s. 7 lbs.; turps, 10s. 7 lbs.; white lead, 1s. 6d. lb.; enamel, 42s. 6d. O.M. gall.; coal tar, 4s. 6d. gall.; and Stockholm, 10s. 6d. gall.

THE PAINTING TRADE IN THE UNITED KINGDOM.

When the use of white lead was prohibited by the British Government some time ago, excepting by special licence, builders and decorators were much exercised in mind as to how the restrictions would affect the painting trade. Since

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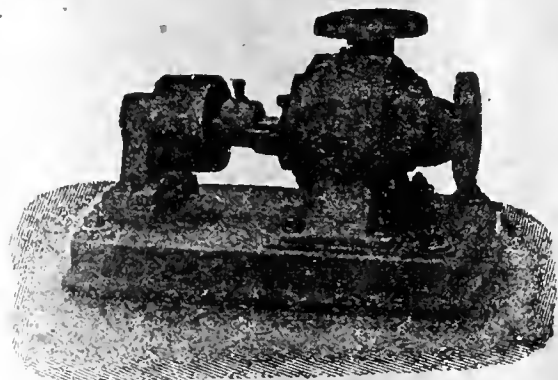
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that time practically all the staple articles used by painters have been similarly restricted, the most important being zinc oxide and zinc compounds, including lithopone, turpentine and turpentine substitutes, rosin and rosin oils, methylated spirits, and, more important than all, linseed and other drying oils. The question naturally arose as to what materials can be now employed without a special permit. Taking linseed oil it is satisfactory to learn that a number of chemists connected with the National Federation of Paint Manufacturers have been engaged in endeavouring to produce substitutes for this oil from what are known as "fatty acids"—the residue of oils after the glycerine has been extracted. It is reported that this research work has been very successful and that later on more substitutes from this source will become available. Another material is pale oil mixing varnish which should be mixed with an equal quantity of raw linseed oil, also white and coloured enamels can be freely used. If coloured paints can be employed, the earth colours, such as yellow and red ochres, sienna, umber, Indian and Venetian reds, iron oxide, the blacks and graphite, mixed with varnish and oil would produce a durable paint. With reference to turpentine and its substitutes, it is difficult to suggest an alternative, and a permit should be necessary, because the substitutes, which consist mostly of white spirit, a petroleum product not unlike petrol, is included in the order. Methylated spirits could be substituted by wood alcohol (methyl alcohol). At the present time colours are affected (in Britain) by the restrictions only when they are derived from a metal basis. The use of earth colour and varnishes, therefore, appears to be the most satisfactory solution of existing problems for the painter. There were 26 tons of rosin in one line and other lots also in a lesser degree offering by brokers during the week, at about 7d. lb.; the retail price being 9d. There is said to

be some Brazilian glue in the market, most likely to arrive, but the price was not ascertainable. Some places are asking 3s. lb. retail for glue, as compared with less than sixpence in the pre-war period.

IRON, STEEL AND HARDWARE.

It is surprising what stocks one comes across in town. This week one yard was observed to contain about £20,000 worth of bar iron and steel, both imported and local, of nearly all sizes and descriptions. All locally-made iron and steel are 40s. per 100 lbs., and imported at from about 50s. upwards. There is no $\frac{1}{4}$ inch imported round to be had from the wholesale houses. The local iron is not so available as it was a few months ago when fair quantities were often sent to the coast, but now that is out of the question. It appears that the mines and railways have the first call on the South African iron, because the makers obtain most of their scrap from these sources, also the demand is so constant as well as great from the railways and mines. Shceing sizes of imported iron, when obtainable, are from 60s. to 70s. per 100 lbs. The yard previously referred to containing the stock of iron and steel has not been able to complete some of its May orders, not only for shoeing purposes but other kinds that are difficult to secure. As regards American iron and steel, it is anticipated that some good consignments have arrived at the coast recently by the 6,000 ton cargo boat. An order has recently been accepted in New York by cable at £17 per ton for rails for delivery alongside the vessel in New York within three months. The price before the war for similar material was £7 $\frac{1}{2}$ delivered at Delagoa Bay. The reason that steel plates are so difficult, nay, impossible seemingly, to obtain from America is that the ordinary tank quality or mine plates have been taken, holus bolus, by our cousins to build ships

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with. It appears that the recognised ship plates were scarce, therefore the next best thing was taken and ships were made and continued in the making, and the cable reports are that they answered very well.

TIMBER AND BUILDING MATERIALS.

The prices of deals and flooring boards have advanced a farthing per foot. Oregon pine is also up 6d. per cubic foot, as it has been gradually absorbed without replenishment, through absence of American shipping. Beaver boards went up from 5½d. to 7½d. per foot, and now there are none to be had in quantity at any price. The building trade was quieter owing to the overhanging labour troubles, but now these have been settled more jobs are offering for tenders, but contractors are still shy of giving prices. The Denver building material works are still busily engaged in manufacturing doors, windows, school desks and furniture, as well as all kinds of mouldings. A nice order has just been received from Elisabethville for something like 2,000 articles, such as doors, windows and such like. Although the works depend chiefly upon the Johannesburg and Reef trade, yet enquiries are received from nearly all the northern parts of Africa, and a good few orders placed in consequence.

VARIOUS TRADE ITEMS.

There are fair quantities of motor spirits in Johannesburg, and by the present system of distribution, on past averages, users will be accommodated. However, big shipments are on the way, which will before long place a different aspect upon the petrol and in a measure the oil position. The electrical supplies are said to be easier, especially with the Municipality, but more information is hoped for next week.

REVISED PRICE LIST.

BUILDING MATERIALS.—Timber: Deals, Baltic, 9 x 3, 1s. 10d. to 1s. 10½d.; flooring, 4½ x 7 and 6 x 7, 11d. to 11½d. per sq. ft.; ceilings, 6 x ½, 6½d. to 7d. per sq. ft.; pitch pine, 9s. per sq. ft.; Oregon, 8s. to 8s. 6d. per cub. foot; clear pine, ½ in. x 12 ins., 1s. 3d. per foot; 1 in. x 12 in., 1s. 9d.; teak, 22s. to 24s. per cubic foot; shelving, 1s. 1d.; jarrah, 12s. 6d. c. ft.; poplar, 1in. x 12in., 1s. 7½d.; scantling, 1s. 10s. to 1s. 10½d. ft.; beaver boards, 7½d.; galvanised iron, 24-gauge, 6ft. to 10ft., 1s. 11d.; 11ft., 2s.; 12ft., 2s. 1d.; 26-gauge, 6ft. to 8ft., 1s. 7d.; 9ft. and 10ft., 1s. 8d.; flat galvanised, 24-gauge and 26-gauge, £5 100lb.; floor brads, 75s.; ceiling, 60s.; wire nails, 75s. to 100s. 100lb.; locks, rim, 68s.; mortice, 70s. per dozen; steel ceilings, 80s. to 85s.; roofing material, 1 ply, 45s.; 2 ply, 52s. 3d.; and 3 ply, 57s. 6d. per roll.

BRICKS, CEMENT, LIME, ETC.—Pretoria Portland Cement, 9s. 3d. bag; 8s. 3d. truck loads; lime, white, unslaked, 7s. 6d.; truck loads, 6s. 6d.; slaked, do., 5s. 6d.; blue, 4s. 6d.; plaster lime, 5s. 6d.; bricks, stock, delivered, 65s. to 70s.; wire cuts, 70s. to 80s.; pressed, 70s. to 80s. 1,000; road transport expensive when obtainable; salt glazed, £15 15s., and white glazed bricks, £35 per 1,000; roofing tiles, £17 10s. to £27 10s. per 1,000; tiles, 17s. 6d. to 21s. 6d. per yard; paving cement tiles, 6s. 6d. per yard laid; reinforced concrete columns, 6ft. plain, 25s.; fluted, 30s.; fireclay bricks, £8 10s. to £10 at kiln, per 1,000; clay chimney pots, 45s. to 70s., according to height, 12in. to 18in. per dozen.

OILS, PAINTS, LEAD, OXIDE, GLASS.—Linseed, raw and boiled, 14s. to 15s. O.M. gallon; white lead, 1s. 6s. per lb. and 1s. 2d. in big lots; turpentine, 85s. to 90s. 2/4 1.5 galls.; 10s. 5-6 imp. tins, 95s.; oxide in oil, 60s. per 100 lb.; dry oxide, 13s. 6d. to 16s.; linseed oil putty, 9d. per lb.; paints in tins, 1s. 6d. lb.; British plateglass, ½ in., 6s. 6d.; do., mirror, 7s. 9d.; window, 16oz., 1s. 6d. to 1s. 9d. per foot; and fancy glass, 2s. per foot.

GREASE.—Imported, A.F. axle, £37 local, £27½ to £28 per ton; tallow (local), 8½d. per lb.; White Rose paraffin, 20s. 4d. 2/4 Laurel paraffin, 20s. 1d.; petrol, 35s. 6d. to 43s. 6d. 2/4 I.M.P.; motor oil, 7s. to 8s. 6d. per gallon; engine lubricating oils, 37s. 6d. to 45s. per case; cylinder, 37s. 6d. to 45s.

CHEMICALS.—Mercury, £40 75lb.; bichromate potash, 5s. 6d. lb.; chlorate, 4s. 6d. lb.; permanganate, 11s. 6d. to 13s. lb.; alum, 6d. lb.; carbolic acid, 7s. 6d. lb.; borax, 115s. 100lb.; cyanide sodium, 2s. 3d. to 2s. 6d. per lb.; hypo, 9d. lb.; nitrate lead, local, 50s. 100lb.; litharge (assay), 70s. to 72s. 6d. (commercial), 58s. 6d. 100 lbs.; zinc sheets and blocks, 1s. 9d. lb.; locally-smelted zinc, 6½d. lb.; plumbago crucibles, 5d. to 6d. per number; carbide, 108s. to 120s. 100lb.

ELECTRICAL GOODS.—Lamps, high voltage, British, Holland and American, 30s. to 36s. wholesale, and 48s. to 54s. doz. retail; carbon lamps, 20s. dozen; pure rubber flex, 6d. to 8d. yd.; 3/20 coils wire, 55s. to 60s.; ditto, 3/22, 35s.; 7/22, 60s.; 7/20, 105s.; 7/18, 135s.; tubing, 30s. to 35s. per 100 ft.; keyholders, 3s. 6d. to 4s. 6d. each; round blocks, 3½in., 5s. to 5s. 6d. dozen; lamp holder cord grips, 15s. to 15s. 6d. per dozen; switches, 5 am., 36s. to 42s. per dozen; British glass shades, 30s. to 40s. dozen; porcelain shackles, 15s. to 18s. dozen; do., bobbins, 25s. to 30s. per 100; cleats, 22s. per 100; P.O. insulators, 18s. dozen.

IRON & STEEL.—Imp., ½ in. and ¾ in. rd., 9d. to 1s. lb.; ½ in. rd. and square 70s. to 75s. 100lb.; ¾ in., 68s.; ¾ in. round, 50s. to 55s. 100lb.; 1 in. up, round, 37s. 6d. to 47s. 6d. 100lb.; sq. iron, 37s. 6d. and up, 100lb.; flat iron, small shoeing sizes, 60s. to 70s.; flat, average width and thickness, 40s. 6d. to 50s.; round iron, local, ¾ in. upwards, 40s. per 100lb.; square iron, local, ¾ in.; upwards, 40s. per 100lb.; flat iron, average width and thickness, local, 40s.; mild steel bar, 7½d. to 9d. per lb.; drill, 10d. to 1s. per lb.; steel plates, 75s. to 85s.; many sizes unobtainable; hexagon and cuphead bolts, ¾ in. diameter, 2s. to 2s. 6d. per lb.; 5-16in. diameter, 1s. 9d. to 2s. per lb.; ¾ in. diameter up to 3in. long, 1s. 9d. lb.; ¾ in. dia., 1s. 6d., 3½in. and up long 1s. 6d. lb.; ¾ in. dia. up to 2½in. long, 77s. 6d. 100lb.; ¾ in. dia. and 2½in. up long, 75s. per 100lb.; ¾ in. diameter up to 2½in. long, 85s. per 100lb.; ¾ in. dia. 2½in. and up long, 60s. per 100lb.; ¾ in. diameter, 2½in. and up long, 55s. 100 lb.; ¾ in. and 1in. diameter, same price as ¾ in. diameter; nuts, ¾ in., 1s. 3d. per lb.; ¾ in., 85s.; ¾ in., 95s.; 1½ in. and 1½ in., 85s.; 1½ in. to 1½ in., 87s. 6d.; 2in. up, 92s. 6d.; washers, all 45s.; rivets, 3-16in., 1s. 6d. lb.; ¾ in., 5-16in., 1s. 6d. lb.; 7-16in., ¾ in., 1s. 3d. lb.; ¾ in., 75s. to 80s.; ¾ in., 72s. 6d.; ¾ in. up, 60s. 100 lb.; shoes and die, 32s. 6d. to 35s.; 100 lb.; rails, £25 per ton; picks, 4lb., 40s. dozen; shovels, 70s. to 78s. dozen; drill hammers, 5½d. to 6d. per lb.; hammer handles (best American), 14in., 4s. 6d.; 24in., 10s.; 30in., 14s.; 36in., 17s. 6d. per dozen; metal, anti-friction knoxite, 11d. to 4s. and special prices per lb.

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Engineering Notes and News.

THE FACTOR OF SAFETY OF WIRE ROPES.—II.

DEALING now with Mr. Roger Price's main criticism, viz., that the author's proposals were unsound for the reason that, in the working life of a rope, the gradual loss of strength is not accompanied by a proportionate loss of weight per foot, it has to be acknowledged that, as a general rule, this statement is true, and this in spite of the fact that the 10 per cent. reduction in strength, introduced originally to allow for the inefficiency of the wires in their laid-up condition in the new rope, may be reduced or even neglected when the rope has worn itself into shape. From weights taken of test specimens of worn ropes, which, considering their short length, may not be very reliable, it is found that the percentage loss of strength is six or seven times the percentage loss of weight in cases where corrosion is absent and the wear is purely on the outside wires. In cases, however, of corrosion, especially if severe internal, the loss of weight may equal or even exceed the loss of strength. This, of course, is all on the assumption that the weight per foot given on the manufacturers' certificate is absolutely accurate. The weakness of Mr. Price's argument is in his apparent assumption that the whole length of the rope has deteriorated to an equal extent. Apart from accidents involving local damage of the rope, it is practically certain that the upper end of a winding rope, at the time that it is discarded, is in a considerably better condition than its lower end. For instance, Y_1 at the upper end may be 9 or 10, while its value at some point in the lowest 400 feet is reduced to 8. The reservation, Y_2 , minimum 4.5, incorporated in the proposed new Regulation, is introduced to provide chiefly for cases in which damage or abnormal wear takes place in the upper part of the rope. It remains to be argued whether the present definition of "maximum working load" should be adhered to. Adopting the symbols used in the author's paper, the "maximum working load" (according to Regulation 37 (11)) would equal $a + b$. It is a question for discussion whether "b" in the case of the maximum working load referred to in the proposed new Regulation should not be taken to mean only that part of "b" which is below that spot in the rope whose strength is being enquired into, and not the whole "weight of the rope in the shaft when the cage is at the lowest working point." If the terms of the present Regulation 37 (11) are rigidly adhered to, the following minimum conditions are found to exist: $6(a + b) = sB$. Introducing the relation

Bs

$a = \frac{B}{Y_1}$ we have $6(a + b) = aY_1$, independent of B ; each

side of the equation representing the same thing—the strength of the winding rope—which, under the Regulation, must not be less at the bottom of the rope than it is at the top. Substituting for "b," the weight of the rope, its value $x \times 1, 6 D^2$, where D is the diameter of the rope,

there results: $aY_1 = 6a + 9.6 D^2x$, or $Y_1 = 6 + 9.6 D^2 \frac{x}{a}$. If

the load "a" equals 3 tons, and $D = 1"$, it is found that for a depth of 1,000 feet, $Y_1 = 7.6$; for 2,000 feet, 9.2; for 3,000 feet, 10.8, and for 4,000 feet, 12.4. If the load "a" = 5 tons, and $D = 1.125"$, it is found that for a depth of 1,000 feet $Y_1 = 7.225$; for 2,000 feet, 8.45; for 3,000 feet, 9.67; and for 4,000 feet, 10.9. These figures go to show that the author's suggested rule of $Y_1 \text{ min.} = 8$ will afford relief in the case of deep level shafts without being at all embarrassing in the case of those of shallower depth. The scheme really boils down to this, that the author advises that the winding of standard loads may proceed to greater depths with the same sized ropes.

Mr. J. Cowell's contribution to the discussion, although not dealing with the question of the factor of safety of the winding rope, is very valuable, containing as it does Mr.

J. E. Stead's report concerning the searching examination he conducted on the two worn rope specimens submitted to him by Messrs. Wilkins Wire Rope Co. The author cannot from personal experience support Mr. Cowell in his contention that the purest steel is unsuitable for ropes to be used in incline or compound shafts. A rope of this grade, owing to adverse working conditions, may last no longer than a cheaper rope, and for this reason be commercially undesirable, but it is difficult to imagine that its life would be shorter. Mr. E. J. Laschinger gave an interesting explanation of the author's intentions, and is deserving of the greatest thanks for supplying the additional detail which has doubtless helped to a fuller understanding of the proposition. His treatment of the theory as applied to incline shafts appears quite correct and his insistence on the importance of the comparison of the related masses in the load and the winding rope should enable students of the problem to realize that kinetic shocks are likely to be more severe than in vertical shafts. Statistics, however, do not appear to show that ropes in incline shafts break chiefly on account of this handicap. Neglecting the fractures of winding ropes that have occurred through "overwinds," it is found that during the last thirteen years 66 ropes have broken in incline shafts as compared with 16 in vertical shafts, these latter being only a small percentage less in number than the former. The following table shows an analysis of the causes of fracture:

Class.	(1)	(2)	(3)	(4)	(5)
	Sudden stop- ing or start- ing.	Accidental damage.	Derailment, collision or jam.	Arrest of descent, fol- lowed by free fall.	Worn out.
Incline Shafts ...	1	9	28	18	15
Vertical Shafts ...	2	3	4	6	1

In the cases of accidental damage, the fracture occurred at the part of the rope so affected, while in the classes (1), (3) and (5) the rope broke near its lower end, except in a few cases of compound shafts where the rope had been turned end-for-end. In class (4), the rope gave way, as might be expected, at or near the winding drum or pit-head sheave. Accidents under classes (3) and (4) are necessarily more common in incline than in vertical shafts, and are in no way attributable to a low factor of safety in the winding rope. The preponderance of fractures due to worn out ropes in incline shafts (which include the "compound" variety) can be assigned to the brittleness engendered in

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the outside skin of the wires by contact with guiding or deflecting rollers. Mr. E. G. Izod, in his valuable contribution, supplied most important statistics relative to the standard practice in the matter of capacities of winding ropes in the shallower shafts of the mines under his engineering control. The author has alluded previously to the corroborative value of these figures, but wishes here to personally thank Mr. Izod for the assistance so rendered. In answer to that important query—has the critical depth ever been proved by experiment?—the author would say "No," but suggests that Mr. Izod is in a unique position to undertake the investigation, which really only involves the testing of the rate at which the pressure wave travels in long and short winding ropes. Various lengths of rope have to be dealt with, so that the probable "damping" effect may be discovered. The matter of the "fatigue testing" of the wires of winding ropes is being proceeded with, and further practice with the "Vaughan-Epton" machine should lead in the near future to the proposals of standards of efficiency, which, it is hoped, may be acquiesced in by manufacturers and users. In the March Journal there appeared prints of this testing machine, as also some description of the work for which it is suitable. It is not thought necessary to enlarge further on the matter in this reply. The President pointed out in his conservative and

non-committal criticism that dangers might lurk in a path-way which experience had not as yet surveyed or sounded. This caution has been duly appreciated by the author, but, in this considered reply to the discussion on his paper, he sees no reason to modify any of his proposals and trusts that the additional information furnished in this closing contribution will enable Mr. Clark to agree that progress on the lines indicated is both necessary and justified. It has been recognised for years that shocks in winding are due more to the weight of the load than to the weight of the rope and that these shocks become less dangerous in the case of a longer rope, but no advantage had been taken of these facts on these mining fields. The author on previous occasions has advocated the gaining of experience by means of reduction of the factor of safety for rock winding but this does not appear to have been feasible, nearly every winding plant being licensed for the conveyance of persons, although some are perhaps not generally used for this purpose. It was hoped that some of our members in the U.S.A. would have been stirred to communicate some details of the present practice with respect to winding ropes in that country, but nothing has come to hand up to the present, so that the discussion closes without the intervention of any contributor with practical experience of winding at lower factors of safety than six.

PROGRESS OF THE NEW CAPETOWN WATER SCHEME.

MR. D. E. Lloyd Davies (City Engineer), in a report to the Waterworks Committee of the Capetown City Council, states that the various sectional works in connection with the Steenbras water scheme are now well advanced. The plans, specifications and quantities having been completed, contracts for the dam and tunnel were let by the committee during November last, as follows:—Contract No. 1: Masonry dam and other works in connection therewith, Mr. A. L. Reed, £49,750. Contract No. 2: Tunnel and approaches, Messrs. G. W. Smith Bros., £14,724. Total, £64,474. Contract No. 1: Steenbras Valley dam; signed November 17, 1917; time for completion, 24 months. An approach roadway has been formed on the north-west side of the Steenbras Valley to facilitate the transport of plant and materials from the railway siding to the site of the works. The excavation for the foundation of the dam is in full swing, the whole of the trench on the south-west side of the river has been opened up, and sound rock reached at an average depth equivalent to that foreshadowed in the quantities. The excavation on the north-west side of the river will now be undertaken. As far as can be seen, it does not appear that any difficulty will be encountered with the foundations. A good quarry face has been found on the north-west side of the valley, and there is every prospect of obtaining a quantity of suitable stone. Contract No. 2: Hottentots Holland Tunnel; signed November 17, 1917; time for completion, 18 months. The open cutting from the outlet pipe at the dam to the entrance of the tunnel, where it is about 20 feet in depth, is nearing completion. To avoid delay 24-inch cast-iron pipes, primarily imported for the southern suburbs main drainage scheme, are being sent out, and will be used along this cutting and through the tunnel as far as the shaft, where the line will discharge on to the concrete-lined floor. All cast-iron pipes taken

from main drainage stock will be replaced when those on order for the Steenbras scheme arrive. The tunnelling of the Hottentots Holland range of mountains has been commenced from both ends, and about 100 feet in length has been driven. At the valley end some indifferent ground was met with at a short distance from the mouth, and the contractors requested and have been allowed to continue the open cutting for about 100 feet further than shown on the drawings. At the Gordon's Bay end good sound rock has been encountered. As soon as the contractors' power plant is completely installed more rapid progress is expected with the driving of the tunnel. Nearly five miles of 30-inch cast-iron pipes, together with a few specials, have arrived and been transported along the pipe line route. As soon as a sufficient number of valves and specials come forward the work of laying these pipes will be carried on, and the pipe line completed as far as possible from the Steenbras end. The wagons, designed and constructed for the transport of the pipes from the pipe yards to the site of the works, have proved adaptable and economical. Lead, yarn and tackle are all in readiness. The position in regard to the delivery of the pipes, according to the latest advice from the Council's London agents, is given below: Delivered at Capetown and transported to yards and works, 4,570 tons; on the water, 450 tons; being shipped, 2,500 tons; made and awaiting shipment, 5,000 tons; total, 12,520 tons. This figure represents over one-third of the total quantity required for the scheme. The loss through damaged pipes and breakers during transit by steamer and railway, after cutting, is 36 tons, i.e., a little over $\frac{1}{2}$ per cent. on pipes delivered on site to date. Several tenders have been received for the filtration plant. They are being tabulated for submission to the committee in due course. The money spent to date under the scheme amounts to approximately £112,000, which is made up as follows: General, £3,186; acquisition of water rights, £51,132; masonry dam, £4,000; tunnel and approaches, £1,685; pipe line (to date), £130,000; total, £190,000.

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May Company Registrations.

LIST OF COMPANIES REGISTERED IN MAY, 1918.

- 5531 The United Coal Co., Ltd., 177, Church Street, Pretoria; capital, £600.
- 5532 R. H. Henderson, Ltd., 33, Commissioner Street, Boksburg; capital, £20,000.
- 5533 Ayoung Hesy and Co., Ltd., 5, Jeppe Street, corner Fraser Street, Johannesburg; Capital, £1,000.
- 5534 Thakor, Ltd., Joubert Street, Ermelo; capital, £1,000.
- 5535 Vesma, Ltd., 478, Sixteenth Street, Vrededorp; capital, £100.
- 5536 The Transvaal United Patidar Society, Ltd., 69, Terrace Road, Fordsburg, Johannesburg; capital, £15.
- 5537 The Cape Wine Bodegas Co., Ltd., 51 and 58, National Mutual Buildings, Rissik Street, Johannesburg; capital, £1,000.
- 5538 S. C. H. Herbert and Fletcher, Ltd., 1 and 2, Central House, Main Street, Johannesburg; capital, £14,400.
- 5539 Reinforced Concrete, Ltd., Benoni Chambers, Market Avenue, Benoni; capital, £1,000.
- 5540 Pavady Pillay, Ltd., 2, Turf Club Street, Turffontein, Johannesburg; capital, £500.
- 5541 The General Refiners, Ltd., 105, Pritchard Street, Johannesburg; capital, £100.
- 5542 French Garage and Engineering Works (Leon Robert), Ltd., 11-17, Trust Buildings, Fox Street, Johannesburg; capital, £6,100.
- 5543 Rand Forage, Ltd., 20, Aegis Buildings, 34, Loveday Street, Johannesburg; capital, £100.
- 5544 The Heidelberg Mahomedan Mosque, corner Struhen and Market Streets, Heidelberg; capital, £100 (Section 21.)
- 5545 S.A. Caustic, Ltd., 10, Sydney Road, Lorentzville, Johannesburg; capital, £2,000.
- 5546 Beard Ellis and Oakley Thomas, Ltd., 55, Sauer's Buildings, Loveday Street, Johannesburg; capital, £12,000.
- 5547 W. Lipworth and Co., Ltd., 139, President Street, Johannesburg; capital, £50,000.
- 5548 Doolabh and Kara, Ltd., 83, Bezuidenhout Street, Bertrams, Johannesburg; capital, £1,400.
- 5549 The Aubrey Phillips Agencies, Ltd., 11, Belfast Buildings, 106, Market Street, Johannesburg; capital, £500.
- 5550 Krugers and Hall, Ltd., 84, Avenue Road, Fordsburg, Johannesburg; capital, £754.
- 5551 The Delagoa Bay Cigarette Co., Ltd., Ockerse Buildings, 66, Market Street, Johannesburg; capital, £1,500.
- 5552 The Smithfield Auctioneers, Ltd., 144-146, Exploration Buildings, 74, Commissioner Street, Johannesburg; capital, £10,000.
- 5553 The Hellenic Community of Johannesburg, The Greek Church, 74, Wolmarans Street, Johannesburg; capital, £7 10s. (Sec. 21.)
- 5554 The Union Basket Works, Ltd., 3, Maclaren Street, Johannesburg; capital, £500.
- 5555 The Lees Manufacturing Co. (S.A.), Ltd., 77, Auret Street, Jeppes, Johannesburg; capital, £500.
- 5556 Mahaprol, Ltd., 442, Boom Street, Indian Location, Pretoria; capital, £1,000.
- 5557 Patidar, Ltd., 373, Cowie Street, Asiatic Bazaar, Pretoria; Capital, £200.
- 5558 The W. L. Reeder Co., Ltd., 222 (second floor), Consolidated Buildings, corner Harrison and Fox Streets, Johannesburg; capital, £5,000.
- 5559 Cheleong, Ltd., 25, Sacke's Buildings, Joubert Street, Johannesburg; capital, £500.
- 5560 F. T. Howard and Co., Ltd., The Benoni Arcade, Market Avenue, Benoni; capital, £5,000.
- 5561 Oslo Land Co., Ltd., 233, Proes Street, Pretoria; capital, £400.
- 5562 Suid Afrikaanse Werkers Bond, Zeemans Gebouwe, hoek van Harrison en Marktstrate, Johannesburg; capital, £1 (Sec. 1.)
- 5563 Tommy and Co., Ltd., 86, Gold Street, Johannesburg; capital, £800.
- 5564 Springs Properties, Ltd., Second Street, Springs; capital, £10,000.
- 5565 The Star Milling Co., Ltd., 83, Bree Street, Newtown, Johannesburg; capital, £10,000.
- 5566 United African Timbers Corporation, Ltd., 9, Natal Bank Chambers, second floor, Market Street, Johannesburg; capital, £10,000.
- 5567 R. M. Dowson, Ltd., 7 and 8, Oceana Buildings, Simmonds Street, Johannesburg; capital, £2,500.

ALTERATION AND ADDITIONS TO FOREIGN COMPANIES.

- 3516 The Exploration Co., Ltd., Johannesburg.
- 5167 The Invicta, Ltd., Johannesburg.

EXTRAORDINARY AND SPECIAL RESOLUTIONS.

- 5110 Monarch Hill Antimony and G.M. Co., Ltd., Pretoria; alteration of Articles.
- 3874 The Union Steel Corporation (of S.A.), Ltd., Vereeniging; alteration of Articles.
- 4413 The Craigie Mines, Ltd., Johannesburg; alteration of Articles.
- 4242 Warne's Cafe, Ltd., Johannesburg; liquidation.
- 4358 African Plumbing and Metal Works, Ltd., Johannesburg; liquidation.
- 3678 Century Tin Mines, Ltd., Pretoria; Liquidation.
- 3818 African Guarantee and Indemnity Co., Ltd., Johannesburg; alteration of objects.
- 5306 Wineberg, Ltd., Johannesburg; change of name.
- 4950 S. Hirschman and Co., Ltd., Johannesburg; increase of capital.
- 5050 Brakpan Foundry, Ltd., Johannesburg; increase of capital.
- 5183 Patent Rickshas, Ltd., Johannesburg; increase of capital.
- 3637 Hine and Sacha, Ltd., Johannesburg; alteration of Articles.
- 4341 Cassim Adam, Ltd., Pretoria; powers of Directors.
- 567 T. W. Beckett and Co., Ltd., Pretoria; alteration of Articles.
- 704 Braamfontein Co., Ltd., Johannesburg; liquidation.
- 5334 Freedman's Meat Supply Co., Ltd., Johannesburg; liquidation.
- 5388 Angola Exploration Syndicate, Ltd., Johannesburg; liquidation.
- 5181 Union Corundum Mines, Ltd., Johannesburg; liquidation.
- 5409 The Apex Films (S.A.), Ltd., Johannesburg; liquidation.
- 5170 Union Mica Mines, Ltd., Johannesburg; change of name and increase of capital.

NOTICES OF INCREASE AND DECREASE OF CAPITAL.

- 5470 E. R. Monk and Co., Ltd., Johannesburg; increased from £1,000 to £1,700.
- 5050 Brakpan Foundry, Ltd., Johannesburg; increased from £2,100 to £8,000.
- 5183 Patent Rickshas, Ltd., Johannesburg; increased from £4,000 to £12,000.
- 2933 The Transvaal Drug Co., Ltd., Johannesburg; increased from £5,000 to £50,000.
- 4950 S. Hirschman and Co., Ltd., Johannesburg; increased from £1,500 to £2,500.
- 5307 White Leads (S.A.), Ltd., Johannesburg; increased from £4,000 to £5,000.
- 3818 African Guarantee and Indemnity Co., Ltd., Johannesburg; reduced from £250,000 to £205,000.

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The Week's Meetings.

WIT. TOWNSHIPS.

The annual meeting of the Witwatersrand Township, Estate and Finance Corporation, Ltd., was held in the board room, Jeppe Arcade, June 13. Mr. Julius Jeppe presided, and the share representation was 58,727 out of a total issued capital of 200,000.

In moving the adoption of the report, the Chairman said: Before referring to the accounts in your hands, I would like to explain that the reason you have only received the report and accounts at this meeting is because, owing to the irregular dispatch of mails, the European shareholders will only recently have received their copies; which also accounts for the fact that no proxies from overseas have been received for use at this meeting. From these accounts you will see that the profit for the year was £21,198, which is £3,762 greater than last year. You will, however, notice that the profit figure for this year is only £2,179 greater than the figure I gave in my speech last year as the profit for that year. This is due to the fact that the amount set aside to provide for the income tax was, in last year's account, treated as a contingent liability, and not, therefore, included in the administrative charges for the year; whereas, in this year's accounts, it has been so included. Our gross receipts for the year under review were increased by £5,217, but our expenditure was larger by £1,455, principally due to rates and taxes and establishment charges. Considering that the abnormal conditions due to the war still continue, and that the amount payable in rates to the municipality is £1,115 greater than was provided for last year, I think you will agree with me that the profit shown is satisfactory. With the amount brought forward from last year, we had a sum of £32,749 to the credit of profit and loss account, and your directors have dealt with this sum as follows: In the first place we have

written down your assets by £13,408, this sum being thought necessary in order to bring them in at present-day values; we increased the reserve account for bad and doubtful debts by a further £500; we had to provide £262 for the new dividend tax; and we declared a 2½ per cent. dividend in December, absorbing £5,000, and this left £13,578 to be carried forward to this year.

Principles of Valuation.

You will remember that I referred last year to the appeal which the township owners had made against the principles followed in the compilation of the new valuation roll, and informed you that our contentions had been upheld, and that a special court had been appointed to make a revaluation. The result of this has been, roughly speaking, to reduce the valuation of all unsold stand interests to about 20 per cent. of the figure fixed by the Town Council. Your directors also appealed against the valuation of your stand licence interest, but in this we were not so successful. The town valuer capitalised these interests so as to give a net return of 4½ per cent., whereas we considered that a net return of 8 per cent. all round was justified, owing to the precarious nature of the security in these cases where the buildings were only of a cheap and temporary character, and, further, that a purchaser of such an interest was entitled to provide a sinking fund for the return of his capital at the termination of the period of payments. The judgment disallowed a sinking fund, and fixed the net return at 5½ per cent., subject to income tax, which seems absurd, considering that the Government loans return 5 per cent. free of income tax, with a return of the capital at the expiration of the loan period. There was, however, no appeal from this court, but your directors will bear this valuation in mind when the next valuation roll is compiled.

The reason why, with these results, the amount for rates in this year's accounts is much larger than last year, is partly because the amount of the rate on land was increased by three farthings in the £ between 1916 and 1917; and, secondly, because a certain amount of this year's charge was really paid to liquidate a portion of last year's assessment rate, which was still in dispute at the close of 1916.

The item "Investments in Shares" is the only other item in the accounts which shows a considerable difference since last year. The increase of £48,794 shown here is mainly caused by the reconstruction of Malvern Estates, Limited, in which your corporation now owns four-fifths of the capital—shares in the reconstructed company having been accepted in liquidation of the moneys due to your corporation. This same reconstruction is largely responsible for the decrease of £14,855 in "Bonds and Loans."

On Active Service.

All the eligible members of the staff—to the number of ten—either are or have been on active service, and it is with the deepest regret that I have to record the death in action in Flanders during one of the recent severe battles in that theatre of war one of these, Mr. Milner Maynard, and on your behalf I beg to tender to his parents our deepest sympathy with them in their loss. Before going to France, Mr. Maynard served in the German East campaign, where he was severely wounded.

I also desire to mention that the following additional casualties have been recorded amongst the members of the staff, namely, E. T. Salberg, severely gassed; D. P. Suttie severely wounded. Both of these have I am glad to say, recovered.

In conclusion, I would like to express the directors' appreciation of the services of the staff during the year under review, especially in view of the absence of members thereof on active service, causing extra work for those remaining.

The report and accounts were adopted without discussion. The retiring auditors and directors were re-elected.

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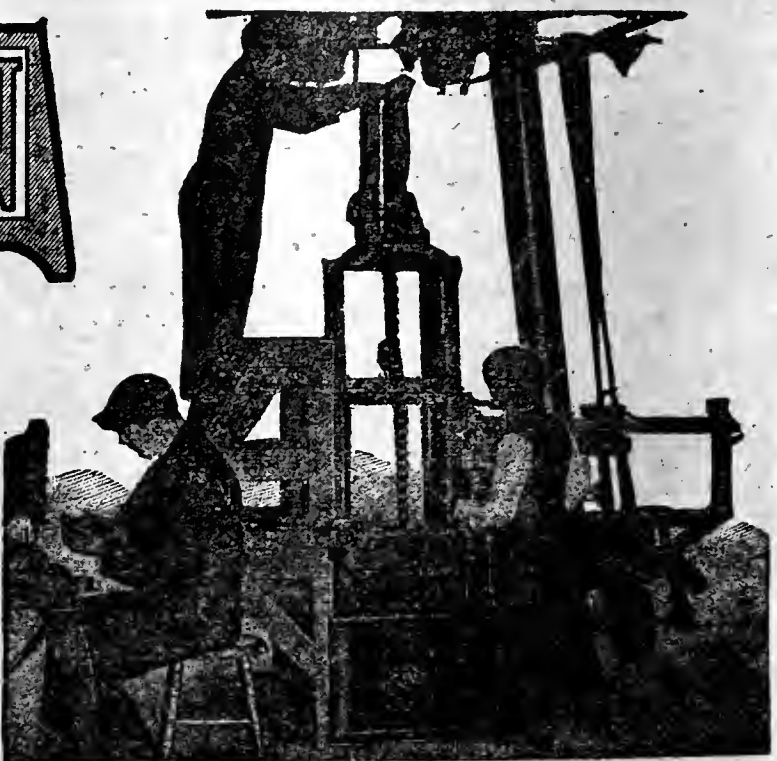
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ESTABLISHED 1891

PUBLISHED EVERY SATURDAY

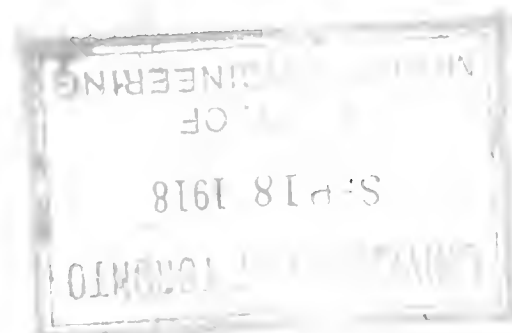
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VOL. XXVII., PART II. No. 1394. JOHANNESBURG, TRANSVAAL, SATURDAY, JUNE 15, 1918. [WEEKLY, PRICE 6D.]

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Printed for the South African Mining Journal Syndicate, Limited, by the Argus Printing and Publishing Company, Limited, Lower President Street, and Published by the Syndicate. Obtainable at all Branches and Agencies of the Central News Agency, Limited, and all News Agents and Railway Bookstalls throughout South Africa.